No. 36

This Book is the Property
of the
JOINT MEETING
and is loaned with the stipulation that it may be recalled
at any time on demand of the Joint Meeting.

NEW JERSEY STATE LIBRARY
J J974.931 S517
Minutes of the joint meeting in the matt
3 3009 00402 4057

MINUTES

OF THE

JOINT MEETING

IN THE MATTER OF AN OUTLET SEWER
FOR THE FOLLOWING MUNICIPALITIES:

NEWARK, SUMMIT, IRVINGTON, WEST ORANGE, VILLAGE OF SOUTH ORANGE, MILLBURN AND THE BOROUGH OF VAILSBURGH

I

N. J. Joint outlet sewer commis
"

PRELIMINARY MEETINGS 1898-1900
PERIOD OF CONSTRUCTION 1901-1904

For Library Use Only
DO NOT CIRCULATE

1915

J974.931
S511

At the annual meeting of the Joint Meeting held at the South Orange Village Hall on June 24th, 1915, the following motion was offered by Mr. Denman, and unanimously adopted:

"Moved that a Committee be appointed by the Chairman, of which the Chairman of the Joint Meeting shall be head, to take up the question of revising the minutes with a view toward reprinting and indexing the same."

The Chairman, Mr. Speir, appointed Messrs. Denman of Newark and Byrd of Millburn.

The following pages are the result of this motion.

On account of the large cost involved it was thought best by the Committee to order printed at this time only so much of the minutes as are included in the construction period, together with those of the preliminary meetings.

The minutes and other papers in the hands of the Secretary have been compared with those in the files of the Chairman and Engineer, with the result that certain additions and corrections have been made, and it is believed that this first volume contains a complete record of the Joint Body beginning with the first preliminary meeting, and continuing through the work of the construction period.

EDWARD S. RANKIN,
Secretary.

Newark, N. J., October 1st, 1915.

Digitized by the Internet Archive
in 2013

http://archive.org/details/minutesofjointme01newj

PRELIMINARY MEETINGS

Joint Sewer Committee, May, 1898.

PREAMBLE of Minutes of first meeting of the Joint Sewer Commission, held in South Orange Village Hall in early part of May, 1898.

In response to an invitation of R. S. Sinclair to discuss the practicability of providing a joint sewer to tide water.

The following municipalities were represented: West Orange, Irvington, Vailsburgh, Newark and South Orange Village.

Mr. Sinclair was chosen Chairman of meeting. After taking the chair Mr. Sinclair gave an outline of the efforts of South Orange to obtain a trunk sewer. In concluding he said that while his investigation showed him that it would be too expensive for one municipality, he thought that by combining together it might be done with comparatively small expense to each municipality. After discussion, Mr. Alexander Potter was authorized to make a preliminary survey to determine the best route of the proposed sewer to tide water.

An invitation was extended to the Township of Milburn and South Orange Township to be present at next meeting, Sept. 29, 1898.

On motion meeting adjourned.

E. D. TUTTLE,
Secretary.

Meeting of September 29, 1898.

Minutes of a Joint Meeting of the Sewerage Committees representing Newark, Vailsburg, Irvington, Milburn, West Orange, South Orange Township and South Orange Village. R. S. Sinclair, Chairman; Mr. Taylor, Sec'y.

The Chairman stated the object of the meeting was to listen to and take action on the report of Mr. Alexander Potter, the Engineer engaged by the sub-committee to make surveys, estimate of cost, etc., for a trunk sewer from Irvington Junction to tide water.

The report was read by Mr. Potter and on motion duly made and seconded, it was accepted.

It was moved and seconded that the sub-committee, consisting of one representative from each municipality interested, should be continued with the addition of representatives from Milburn and South Orange Township and that such sub-committee should be empowered to arrange with Mr. Potter for a report covering the method to be followed in apportioning the cost of the trunk sewer among the several municipalities and to attend to such other matters as might be referred to the Committee. Carried.

On motion it was decided to take a recess of five minutes to permit a conference of those interested in each of the two lateral branches.

On resuming the order of business the representatives of Newark, Vailsburg and Irvington stated that they had arranged with Mr. Potter to make a survey and estimate the cost of their branch, and the representatives of Milburn, West Orange and South Orange reported that they had also arranged with Mr. Potter to furnish the same information for their line.

Mr. Potter stated that he should be able to furnish those reports and the plan of the distribution of cost within two weeks.

On motion the sub-committee was authorized to confer with the several municipalities through which the sewer shall pass and see what arrangements can be made for right of way.

On motion the meeting adjourned subject to call of the Chairman.

George M. Taylor,
Secretary.

Meeting of October 25, 1898.

Minutes of a meeting held at the Village Hall, South Orange, October 25, 1898, by the joint committee on sewerage and other representatives of neighboring municipalities, as follows: Irvington, Messrs. Glorieux, Tuttle, Jacobi and Hegeman; West Orange, Messrs. Fentzlaff, Cunningham and Otterbein; Milburn, Messrs. Lyon and Hartshorn; South Orange Township, Messrs. Menzel, Palen, Tillou and Brown; South Orange Village, Messrs. Sinclair, Conway and Williams and President Connett.

Mr. Sinclair taking the chair called the meeting to order and the minutes of the meeting of September 29 were read by the Secretary. The Chairman then stated the object of the meeting, which was to hear Engineer Potter's report upon the apportionment of the estimated cost of the trunk sewer to tide water among the municipalities represented.

The Chairman read a letter from Mr. Harrison Van Duyne of Newark stating that he would be unable to attend the meeting in consequence of having to be at Washington and that he had no doubt that Newark would stand by the action of the committee.

The Chairman stated that since the previous meeting at his invitation the representatives of the other municipalities had gone over the line of the projected sewer with him. Also that he had had a meeting with the special committee, the President of the Council and the City Engineer of Elizabeth in regard to obtaining right of way and that these gentlemen seemed favorably disposed toward the project, but thought that opposition may be expected from some portion of the people of Elizabeth.

Engineer Potter then read his report. Mr. Conway moved that the report be received with thanks. Motion carried unanimously.

After a short address by the Chairman and some discussion, Mr. Glorieux moved that the representative of each municipality at this meeting express the position of his governing board on the matter of contributing to the cost of the sewer. Motion carried.

For Newark, the Chairman called attention to Mr. Van Duyne's letter and that Mr. Van Duyne had expressed the opinion to Mr. Potter that he thought Newark's apportionment about right.

For Irvington, Mr. Jacobi stated that the Council had voted to go as high as $30,000.

For Vailsburg, Mr. Potter stated that he had been at a meeting of their Council last Wednesday and a resolution had been passed authorizing the expenditure of $30,000.

For West Orange, Mr. Fentzlaff stated that the Town Committee could do nothing without an election and that the committee was not empowered to take any further action without, but thought that a vote could be taken at the November election, that the Town Committee was in favor of the project and that he thought the general sentiment of the Township was favorable.

For Milburn, Mr. Lyon stated that all the members of the Town Committee were in favor but that they also must have an election, that he had obtained an expression of opinion from a number of prominent citizens which were all in favor of joining.

For South Orange Township, Mr. Menzel stated he had no authority to enter into any agreement but had no doubt of obtaining the consent of the people.

For South Orange Village, Mr. Sinclair read a copy of the resolution passed by the Board of Trustees at its last meeting authorizing the Committee on Sewerage to pledge the co-operation of the Board of Trustees and that South Orange was prepared to go on just as soon as the rest were ready.

After some discussion upon the question of ownership in the trunk sewer, liability, etc., on motion of Mr. Menzel it was ordered that the joint committee make a report upon this subject at the next meeting.

On motion of Mr. Conway it was ordered that the joint committee be authorized to take such steps as it thinks fit in regard to securing options on right of way.

At the suggestion of the Chairman and on motion of Mr. Glorieux the committee was authorized to have 1,000 copies of Mr. Potter's report printed in pamphlet form, with map, to be distributed in each municipality in the same proportion as the apportionment of cost of the sewer set forth in Mr. Potter's report.

On motion of Mr. Conway the meeting adjourned.

JOHN WILLIAMS,
Secretary.

Meeting of Committees on Joint Sewer.

South Orange, N. J., May 5, 1899.

Mr. Robt. S. Sinclair, Chairman.

Mr. Geo. M. Taylor appointed Secretary.

Explanation by the Chairman of the Act passed by the Senate and General Assembly of the State enabling the consolidation of the different Municipalities for the building and maintenance of a sewer.

Explanation by Mr. Potter, in detail, of the apportionment of cost of the sewer to the different Municipalities.

Motion made that the Chair appoint a committee of three, Mr. Sinclair to be Chairman of said committee, said committee to ascertain the price that an engineer would charge to go over the entire work of Mr. Potter and also be open to consultation by each and every of the different Municipalities. The said committee to notify the cost of same to different Municipalities, the said Municipalities to notify the said committee of their approval, the said committee to have power to engage engineer. Carried.

The Chair appoints

Dr. Bryan,
Mr. Van Duyne,
Mr. Glorieux.

Motion made that when proceedings have been taken, and the report of the consulting engineer be satisfactory to the subcommittee, then the Chairman take the necessary steps to proceed under the Act, and further, that when this meeting adjourns, it is to be subject to the call of the Chair. Carried.

Meeting adjourned.

Geo. M. Taylor,
Secretary.

Meeting of June 16, 1899.

MINUTES of the meeting of the Joint Sewerage Committee at the South Orange Village Hall, June 16th, 1899. R. S. Sinclair, Chairman. E. D. Tuttle of Irvington, Secretary.

The committee to engage a consulting engineer reported they had arranged with Engineer Owen to make an examination and report, for $300. Mr. Owen's report was read and on motion was received.

Question of underdrains in Engineer Owen's report came up and Mr. Potter was asked to speak on the matter; he stated that in a general way, such was the case, but it was and is possible to make water-tight joints.

Moved by Mr. Lyon of Milburn that a sub-committee be appointed to investigate the question of underdrainage, increased size, and also to interview Summit and East Orange as to whether they desire to join in the undertaking, and the said committee are authorized to incur such expense as is necessary in making the examination. Carried.

The Chairman appointed the following committee:

R. S. Sinclair, Chairman;
Harrison Van Duyne,
C. Fentzlaff,
W. Glorieux.

Moved by Dr. Bryan of West Orange that a formal application for the approval of the State Board of Health be made.

Moved by Dr. Bryan that the authorities of Summit and East Orange be notified by the sub-committee that the last informal meeting before proceeding with the regular organization, will be Friday evening, the 23rd inst. and that Mr. Potter and Mr. Owen, the Engineers, be requested to be present. Carried.

Moved that the meeting be adjourned. Carried.

E. D. TUTTLE,
Secretary.

Report of Sub-Committee.

Your committee appointed to report upon the advisability of adopting Mr. Owen's suggestions for the use of under-drains and for increase in size of pipe, also to confer with the authorities of Summit and East Orange in regard to their joining in our undertaking, begs to report having a joint conference with Mr. Owen and Mr. Potter, and at the same time witnessed a demonstration by Mr. Potter of the efficacy of a method of making water-tight joints, devised by him, consisting of strands of burlap soaked in hot asphalt wedged into the collar of the pipe with a calking tool. It was our unanimous opinion—Mr. Owen concurring—that if not found too costly, such joints should be used, as being superior to cement joints in excluding ground water.

Regarding under-drains; it is conceded that some under-draining will be necessary. Mr. Potter had already provided, in his estimates, for four thousand dollars' worth, of which Mr. Owen was not aware. Mr. Owen's total estimate for that purpose was $8780. It is our opinion, in which Mr. Owen and Mr. Potter concur, that while construction of under-drains, at a stated price per foot, should be provided for in the contract, the fixing of the amount and location should only be determined as the conditions requiring them may develop during the course of actual construction, and as Mr. Potter's estimates are so generally liberal, there is required no addition to provide for any under-drains that may be found necessary beyond the amount already provided for.

The important item in Mr. Owen's recommendations was the increase in the size of the pipe, because, in the suggested increase of $41,000, $32,000 of it was for the additional pipe capacity. Mr. Potter's original suggestion was for 27 in. pipe, and at the suggestion of our joint committee that was increased to 30 in., which would amply provide for the future, should we not have any influx of a considerable amount of ground water. No doubt, care and watchfulness in the laying of the pipe will exclude much of the ground water and it may be possible to make the joints absolutely tight, but there must always remain a possibility of having to care for a quantity of ground water, and

as we are building for the future, in which there is much conjecture, we should provide for all reasonable contingencies.

The additional amount necessary to cover the cost of increased pipe capacity is not a serious matter when divided among the several municipalities and its guarantee for the future warrants us in recommending that the 33 in. pipe be adopted for the seven municipalities now interested and a 36 in. pipe in the event of our being joined by Summit.

The committee representing the City of Summit are unanimously favorable to joining our undertaking and have had a meeting with our Engineer, when the matter was freely discussed—a report of which will, no doubt, be laid before us tonight.

Representatives of Summit have been invited to attend this meeting.

Regarding East Orange; it is doubtful if there is any necessity for their joining our system, as their own system can, in all probability, be extended to cover their wants. In any event, their needs would be so small as to make no change in estimate of cost necessary, therefore consideration of that suggestion can be safely put aside.

Rob't. S. Sinclair,
W. L. Glorieux,
Carl Fentzlaff.

Meeting of September 14, 1899.

MINUTES of meeting of Joint Sewer Committee held Sept. 14, 1899, at Board of Works Room, Newark.

R. S. Sinclair, Chairman, presiding.

W. W. Menzel acted as Secretary.

Present: Representatives of Newark, Milburn, Summit, Irvington, South Orange Village, South Orange Township and Vailsburg.

The Chairman called attention to the fact that all the municipalities had passed the resolution required by law, approving of the plans, apportionment of cost, etc., of joint sewer with the exception of Vailsburg, whereupon Mr. Woodruff, representing that municipality, stated that the resolution would be passed at next meeting of Council.

Mr. Price reported that he and Mr. Woodruff, appointed to draft a general ordinance, were not yet ready to submit it as they had been unable to confer with Mr. Potter owing to his absence from the city.

Mr. Potter submitted diagrams showing what portion of sewer each municipality uses.

Moved by Mr. Wilcox, that the question of assessment for benefits along line of trunk sewers as provided for in the existing law and the restricting of use of sewer by each municipality to its allotted capacity, be referred to a committee of five to be appointed by the Chair. Carried.

Moved by Mr. Van Duyne, that the Chairman and Engineer be appointed a committee to choose additional members, one from each municipality, with power to ascertain cost of rights of way and, so far as possible, secure options for same; also that each municipality endeavor to obtain such information, as far as practicable, within its own borders. Carried.

Meeting adjourned.

W. W. MENZEL,
Secretary.

Meeting of September 27, 1899.

MINUTES of meeting of Joint Sewer Committee held Sept. 27, 1899, at Board of Works Rooms, Newark.

Moved by Mr. Menzel, that a committee of two, of whom the Chairman shall be one, be appointed to interview Mr. Baker and ascertain how much he would charge to secure options along line of the main trunk sewer; the committee to have power to employ Mr. Baker for one month, at not to exceed one hundred dollars. Carried.

Committee appointed, Messrs. Sinclair and Menzel.

Moved by Mr. Lyon that the Chairman appoint a committee of three to confer with a committee to be appointed by the City of Elizabeth in reference to the right of way along Bayway. Carried.

Committee appointed, Messrs. Lyon, Wilcox and Menzel.

W. W. MENZEL,
Secretary.

Meeting of December 20, 1899.

MINUTES of meeting of Joint Sewer Committee held Dec. 20, 1899, at Board of Works Rooms. Newark.

R. S. Sinclair, Chairman, presiding.

W. W. Menzel, Acting Secretary.

Present: Newark, Milburn, Summit, Irvington, Vailsburg, South Orange Township, South Orange Village.

Minutes of meetings of Sept. 14th and Sept. 27th read and approved.

Chairman announced following committees were appointed under resolution of Sept. 14th:

On Assessment for Benefits, etc.—Wilcox, Menzel, Fentzlaff and Van Duyne.

Rights of Way—Menzel, Holey, Baumann, Lyon, Jacobi, Day, Aschenbach.

Report from Mr. Wilcox, Chairman of Committee on Assessments for Benefits, etc., was read by Secretary, as follows:

"The Committee on Local Assessments for Benefits report that in their judgment the question should, at present, at least, remain as provided in the Legislative Act that authorizes our sewer construction. In the matter of restricting each municipality to the percentage of capacity that it may own, the committee consider that, as far as possible in the course of construction, it shall be made physically impossible for any municipality to discharge a greater quantity of sewage into the trunk sewer than its share of the capacity of the sewer."

On motion of Mr. Glorieux, report accepted and ordered placed on file.

Right of Way Committee reported having engaged Mr. Baker to secure options for Rights of Way and, being present, he reported that options could be obtained at from 20c. to 50c. per lineal foot, 16 feet wide, and the property owners generally, he found, not disposed to offer any serious objections to giving a right of way, but they were averse to signing an option until they were fully satisfied that the project would be carried through with reasonable promptness. Mr. Kissam, who had conferred with property owners on the Irvington branch, reported that options could be obtained at from 25c. to 50c. per foot, an average of 41c. per foot for 10,400 feet.

The Chairman read a letter from the President of the D. L. & W. R. R. regarding right of way along the line of the old West Line R. R. Ordered on file.

Mr. Lyon, Chairman of the committee appointed to confer with a committee of Elizabeth Common Council, submitted a report made to that committee by Engineer Colllingwood, suggesting what changes should be made in our plan through Bayway to accommodate the requirements of the City of Elizabeth, at an estimated cost of $115,000, or in the neighborhood of $60,000 in excess of the cost of our present plan, all of which the Elizabeth committee asked should be constructed free of charge to the City of Elizabeth as compensation for right of way through that city. Owing to the unreasonableness of the demand and the likelihood of material modification of the Engineer's plans by elimination of storm water disposal, the committee could not recommend any consideration of the proposition.

Report received and committee continued.

Col. Price, for Committee on Ordinance, submitted a draft

of ordinance that had been prepared with the expectation that some amendments would probably be suggested by the respective counsel of the municipalities.

On motion of Mr. Glorieux, the following resolution was adopted:

"WHEREAS, The preliminary requirements of the law having been complied with, the plans and estimate of cost having been examined and approved by an experienced consulting engineer, also by other engineers acting in an advisory capacity to municipalities interested, the plans having also met with the unqualified approval of the State Board of Health and the State Sewerage Commission; and

WHEREAS, The adoption, by each of the municipalities interested, of an ordinance authorizing their respective governing bodies to join in a formal agreement to construct the outlet sewer, is necessary to the further carrying forward of this project, therefore,

"Be it Resolved, That the Chairman of the Joint Committee is empowered and instructed to have copies made of the ordinance submitted to this meeting, at the joint cost of the municipalities interested, and deliver one copy to each municipality, and be it further

"Resolved, That, appreciating the urgent need for hastening this project toward its completion, we urge upon the governing body of each municipality a prompt consideration of the ordinance."

A communication was read from the Chairman of the Sewerage Committee of South Orange Village, but no action was taken on it.

On motion of Col. Price, the meeting was adjourned to Jan. 15th, 1900, at 8 o'clock at Board of Works Rooms, Newark.

W. W. MENZEL,
Secretary.

Meeting of March 8, 1900.

Present: All but Summit.

Minutes of previous meeting read and approved.

Bill for printing ordinance, $40, ordered paid by all municipalities pro rata.

On motion of Mr. Lyon, consideration of ordinance be laid over to next meeting, and when we adjourn it be two weeks from to-day, same hour and place. Carried.

Motion made by Mr. Lyon to adjourn. Carried.

.....

Secretary.

Meeting of June 21, 1890.

Meeting of Joint Sewer Committee held at the office of Riker & Riker at 4 o'clock, with Chairman W. L. Glorieux in the chair.

The Clerk read the call for meeting. On roll call all the municipalities were represented except Newark, Vailsburg and Milburn.

The Chairman stated that there seemed to be a feeling that one municipality, South Orange Township, was not entirely in favor of joining in the joint undertaking, and he called on Mr. Mooney, the representative present from South Orange Township, to state whether it was the intention of the Township to continue or not, as it was both desirable and necessary to know at this time their determination before proceeding further with the ordinances, as if they were to withdraw an entire reapportionment would be found necessary.

Mr. Mooney replied that while a portion of the Township required sewerage the Township Board were not in favor of proceeding in the matter with a majority of the people of the Township not in favor of going ahead, and that their Board were convinced that it would be impossible to get a vote of a majority in favor of sewerage at this time, and if now South Orange Township was causing a delay that they would withdraw. After

several representatives present spoke regretting the action of the Township, their withdrawal was accepted, and Mr. Riker, counsel for Milburn and Irvington, moved that the ordinance be re-drafted leaving South Orange Township out upon the basis of the following apportionment. Carried.

Mr. Weeks of South Orange Village moved that the other municipalities do not take final action until Summit has had an election. Carried.

Mr. Weeks moved that the Engineer furnish the Secretary with the revised apportionment and the Secretary transmit a copy to each municipality.

Adjourned.

E. D. TUTTLE,
Secretary.

REAPPORTIONMENT DISTRIBUTING SOUTH ORANGE TOWNSHIP'S APPORTIONMENT AMONG ALL OTHER MUNICIPALITIES.

COST.

Main Trunk Sewer	$187,820.00
1st Division West Branch	80,800.00
2nd Division West Branch	16,480.00
3rd Division West Branch	18,100.00
Milburn-Summit Division	21,000.00
Eastern Division	58,234.00
Total	$382,434.00

AMOUNT OF SEWAGE AND PER CENT. OF CAPACITY IN EACH DIVISION.

Municipalities.	Sewer Capacity Allotted Gallons per 24 hrs.	Main Trunk Sewer. %	1st Div. West Branch. %	2nd Div. West Branch. %	3rd Div. West Branch. %	Milburn-Summit Div. %	Eastern Branch. %
Summit	3,317,715	22.28	35.56			65.71	
W. Orange T'p.	2,434,679	16.35	25.82	50.93	50.93	4.38	
S. Orange V'l.	2,360,223	15.85	22.65	49.07	49.07		4.14
Irvington	2,327,463	15.63					42.31
Milburn	1,509,947	10.14	15.97			29.91	
Vailsburg	1,501,013	10.08					27.39
Newark	1,439,960	9.67					26.16
Total	14,891,000	100.00	100.00	100.00	100.00	100.00	100.00

REAPPORTIONMENT OF VARIOUS SECTIONS OF SEWERS, ELIMINATING SOUTH ORANGE TOWNSHIP.

WEST ORANGE TOWNSHIP.

Main Trunk	$30,709
1st Sec. West Branch	20,863
2nd " " "	8,088
3rd " " "	9.218
Milburn-Summit Div.	920
Total	$69,798

SUMMIT.

Main Trunk	$41,846
1st Sec. W. Branch	28,732
Milburn-Summit Div.	13,799
Total	$84,377

IRVINGTON.

Main Trunk	$29,365
East Branch	24,639
Total	$53,995

MILBURN.

Main Trunk	$19,045
1st Sec. W. Branch	12,904
Summit-Milburn Div.	6,281
Total	$38,230

VAILSBURG.

Main Trunk	$18,932
East Branch	15,950
Total	$34,882

SOUTH ORANGE VILLAGE.

Main Trunk	$29,770
1st Sec. W. Branch	18,301
2nd " " "	8,392
3rd " " "	8,882
East Branch	2,411
Total	$67,756

NEWARK.

Main Trunk	$16,162
East Branch	15.234
Total	$33,396

TOTAL COST TO EACH MUNICIPALITY.

Summit	$ 84,377.00
West Orange Township	69,798.00
Irvington	53,995.00
Milburn	38,230.00
South Orange Village	67,756.00
Vailsburg	34,882.00
Newark	33,396.00
Total	$382,434.00

June 20th, 1900.

ALEXANDER POTTER,
Engineer.

Meeting of August 20, 1900.

Minutes of meeting held Aug. 7th, 1900, at the rooms of the Board of Street and Water Com., Newark, N. J.

W. L. Glorieux, Chairman. E. D. Tuttle, Secretary.

Clerk read call for meeting, which was to adopt reapportionment made necessary by the withdrawal of South Orange Township.

Reading of minutes of previous meeting dispensed with.

Mr. Riker, representing Irvington and Milburn, stated that owing to the withdrawal of South Orange Township and the decision of Summit that they required only their original allotment of 3,000,000 gallons, it would be necessary to make another reapportionment, and as Summit had had their election it was now proper to pass upon a final reapportionment and pass the necessary ordinances at once. Mr. Potter then read the apportionment in full, copy of which is hereto annexed.

In discussing the apportionment previous to its adoption Mr. Weeks of South Orange desired to know what caused the difference between the present apportionment and the one submitted at the last meeting. Mr. Potter explaining, said that it was caused by Summit desiring 3,000,000 gallons instead of 3,317,715 gallons.

Mr. Speir asked the representatives from Irvington as to their ideas as to the increased allotment to them. Irvington replied that they were satisfied to receive and pay for the increase.

On motion of Mr. Riker the reapportionment was adopted.

Motion was made and carried that the various municipalities pass the ordinance as amended with the reapportionment just adopted and that the joint counsel forward to each municipality a printed draft of such revised ordinance for its introduction and passage.

On motion meeting adjourned.

E. D. Tuttle,
Clerk.

REAPPORTIONMENT TO ELIMINATE SOUTH ORANGE TOWNSHIP AND ALLOW SUMMIT 3,000,000 GALLONS IN TRUNK SEWER.

AUGUST 4, 1900.

COST.

Main Trunk Sewer	$187,820.00
1st Division West Branch	80,800.00
2nd Division West Branch	16,480.00
3rd Division West Branch	18,100.00
Millburn-Summit Division	21,000.00
Eastern Division	58,234.00
Total	$382,434.00

AMOUNT OF SEWAGE AND PER CENT. OF CAPACITY IN EACH DIVISION.

Municipalities.	Sewer Capacity Allotted Gallons per 24 hrs.	Main Trunk Sewer. %	1st Div. West Branch. %	2nd Div. West Branch. %	3rd Div. West Branch. %	Millburn-Summit Div. %	Eastern Branch. %
Summit	3,000,000	20.13	31.40			65.71	
W. Orange T'p.	2,501,177	16.80	27.49	50.93	50.93	4.38	
S. Orange V'l.	2,425,250	16.29	24.11	49.07	49.07		4.14
Irvington	2,391,004	16.06					42.31
Millburn	1,551,324	10.42	17.00			29.91	
Vailsburg	1,543,882	10.37					27.39
Newark	1,478,363	9.93					26.16
Total	14,891,000	100.00	100.00	100.00	100.00	100.00	100.00

STATEMENT OF APPORTIONMENT OF VARIOUS SECTIONS OF SEWERS.

SOUTH ORANGE VILLAGE.

Main Trunk	$30,596
1st Section West Branch	19,481
2nd Section West Branch	8,392
3rd Section West Branch	8,882
East Branch	2,411
Total	$69,852

WEST ORANGE TOWNSHIP.

Main Trunk	$31,554
1st Section West Branch	22,212
2nd Section West Branch	8,088
3rd Section West Branch	9,218
Milburn-Summit Div.	'920
Total	$71,992

MILBURN.

Main Trunk	$19,571
1st Section West Branch	13,736
Summit-Milburn Div.	6,281
Total	$39,588

SUMMIT.

Main Trunk	$37,808
1st Section West Branch	25,371
Summit-Milburn Div.	13,799
Total	$76,978

IRVINGTON.

Main Trunk	$30,164
East Branch	24,639
Total	$54,803

VAILSBURG.

Main Trunk	$19,477
East Branch	15,950
Total	$35,427

NEWARK.

Main Trunk	$18,650
East Branch	15,234
Total	$33,884

TOTAL COST TO EACH MUNICIPALITY.

Summit	$ 76,978.00
West Orange Township	71,992.00
South Orange Village	69,762.00
Irvington	54,303.00
Milburn	39,588.00
Vailsburg	35,427.00
Newark	33,884.00
Total	$382,434.00

Meeting of December 4, 1900.

Chairman Glorieux in the chair.

Clerk read the call for meeting.

Roll call: All present except West Orange.

The Chairman stated that as all of the municipalities had passed the joint sewer ordinance it was now the proper time to take up and prepare a form of joint contract as provided in the said ordinances, for the carrying out and completing of the work.

Mr. Adrian Riker, representing the Township of Milburn and the Town of Irvington, stated that a contract had been prepared, which he would submit to the Joint Committee. The contract was then read and the various features discussed.

At Mr. Riker's suggestion it was moved that the contract be referred to the joint counsel for examination and they to report to the respective municipalities contract for adoption.

J. R. Weeks of South Orange amended that a copy of the contract, after approval by the joint counsel, be sent to each municipality. Amendment accepted by mover of motion and the motion adopted.

There being no further business, adjourned.

E. D. Tuttle,
Clerk.

PERIOD OF CONSTRUCTION

MINUTES OF JOINT MEETING.

OFFICIAL MEMBERSHIP OF THE VARIOUS MUNICIPAL BODIES AT THE TIME OF ORGANIZATION, MARCH 22, 1901.

CITY OF NEWARK.

George M. Ballard (President of Board of Street and Water Commissioners),
Joseph M. Byrne,
W. C. Garrison,
J. S. Vinson,
C. V. Baumann.

TOWN OF IRVINGTON.

W. L. Glorieux (Councilman-at-Large),
E. D. Tuttle,
John W. Wolf,
Dayton O. Meeker,
John V. Hageman,
Louis E. Voorhis,
George P. Hayward.

TOWNSHIP OF MILLBURN.

Charles O. Lyon, Chairman,
Charles W. Cox,
R. G. Marsh.

CITY OF SUMMIT.

George Wilcox, Mayor,
Charles S. Day, President,
Ruford Franklin,
A. A. Buckley,
George W. Baldwin,
George Hand.

VILLAGE OF SOUTH ORANGE.

Ira A. Kip, Jr., President,
Francis Speir, Jr.,
Graham H. Brewer,
F. L. DuBosque,
John R. Weeks,
Philip Campbell,
H. H. Hart.

BOROUGH OF VAILSBURG.

George A. Smith, Mayor,
A. Eschenfelder,
William Welcher,
Thomas Connelly,
F. J. Reynolds,
George A. Froelich,
Emil E. Harms.

TOWN OF WEST ORANGE.

S. H. Rollinson, Councilman-at-Large,
Thomas Cunningham,
Irven Kenney,
Max Brodesser,
Edward Glazier,
Thomas Gannon,
William P. Condit,
Herman Frye,
John Otterbein.

Joint Meeting of March 27, 1901.

Meeting of the Joint Sewerage Commission held at the rooms of the Board of Street and Water Commissioners, Newark, on Wednesday, March 27, 1901, at 4 p. m.

The following representatives from the seven municipalities were present:

Newark—Ballard, Garrison, Baumann and Byrne.

Irvington—Tuttle, Wolf, Meeker, Hageman and Voorhis.

Milburn—Lyon, Cox and Marsh.

Summit—Day, Franklin, Buckley, Baldwin and Hand.

West Orange—Rollinson, Otterbein, Glazier, Cunningham, Kenney, Brodesser, Gannon, Condit and Frye.

South Orange—Kip, Speir, Weeks, Campbell and Brewer.

Vailsburg—Welcher and Eschenfelder.

In the absence of Chairman Glorieux, Mr. Tuttle called the meeting to order and read the call for the meeting as follows:

March 20th, 1901.

Whereas, The Township of Milburn, in the County of Essex; the Mayor and Common Council of the City of Newark; the City of Summit; the Town of Irvington; the Town of West Orange; the Village of South Orange, and the Mayor and Council of the Borough of Vailsburg, have entered into a joint contract bearing date the fifteenth day of March, 1901, for the joint construction and operation of a trunk outlet sewer, or sewers and appurtenances, which contract has been duly recorded in the office of the County Clerks of the Counties of Essex and Union.

Now, therefore; We, a majority of the presiding officers of the governing bodies or boards of said municipalities so contract-

ing, having authority to construct sewers and appurtenances therein do hereby fix Wednesday, the twenty-seventh day of March, 1901, at four o'clock in the afternoon, as the time, and the meeting room of the Board of Street and Water Commissioners of the City of Newark, on Halsey Street, in the said City of Newark, as the place at which said governing bodies or boards of said municipalities shall meet in Joint Meeting for the purpose of organizing as a "Joint Meeting" pursuant to the statute authorizing said contract and of electing by ballot a permanent Chairman, Secretary and Treasurer, and such other officers, servants and agents, and of fixing their compensation as a majority of the municipal bodies or boards present and voting in such joint meeting shall deem proper and advisable, and to consider such other matters as may properly come before said meeting.

W. L. Glorieux,
Councilman-at-Large, Irvington.
Thomas Connelly,
Mayor of the Borough of Vailsburg.
Simeon H. Rollinson,
Councilman-at-Large, West Orange.
Charles O. Lyon,
Chairman Township Committee of Milburn.
Ira A. Kip, Jr.,
President of the Village of South Orange.

The first business before the Committee was the election of a Temporary Chairman, and Mr. Charles O. Lyon, of Milburn, was nominated by Mr. Tuttle, of Irvington, and seconded by Mr. Kip, of South Orange.

On call of the ayes and nays Mr. Lyon was made Temporary Chairman.

The call of the roll of the seven municipalities was then made and the representatives as above were noted as present.

Objections on the part of the representatives from Vailsburg and Newark, and from Mr. Weeks, of South Orange, on the ground that official notice of this meeting had not been given to them, was not sustained.

The next business before the meeting was the election of a Temporary Secretary. Mr. Graham H. Brewer, of South

Orange, was nominated by Mr. Kip and duly elected to the position.

The Chairman then stated that it would be in order to make nominations for a Permanent Chairman, and that the vote would be taken per capita present. The chairman appointed, as tellers, Messrs. Rollinson and Kip. On motion of Mr. John W. Wolf, of Irvington, Mr. Edward D. Tuttle, of Irvington, was nominated for the position of Permanent Chairman. The nomination was duly seconded.

On motion, duly seconded, the nominations were closed. After voting it was found that Mr. Tuttle had received 23 votes, and he was declared elected to the office of Permanent Chairman.

Mr. Tuttle then took the chair and called for nominations for the office of Permanent Secretary. Mr. William Rollinson, of West Orange, was nominated by Mr. Franklin, of Summit, and the nomination was duly seconded. On motion, duly seconded, the nominations were closed.

The vote for Secretary was by municipalities and not per capita present.

The same Tellers were appointed and the Secretary announced the vote as follows:

Newark—No vote.
Irvington—William Rollinson.
Milburn—William Rollinson.
Summit—William Rollinson.
West Orange—William Rollinson.
South Orange—William Rollinson.
Vailsburg—No vote.

Mr. William Rollinson, having obtained a majority of the vote, was declared elected Permanent Secretary.

The Chairman then called for nominations for the office of Permanent Treasurer.

Mr. Rollinson, of West Orange, nominated Mr. Francis Phraner, of Summit. The nomination was duly seconded. On motion, duly seconded, the nominations were closed. Messrs. Kip and Rollinson acted as Tellers, and the Secretary announced the vote as follows:

Newark—No vote.

Irvington—Francis S. Phraner.
Milburn—Francis S. Phraner.
Summit—Francis S. Phraner.
West Orange—Francis S. Phraner.
South Orange—Francis S. Phraner.
Vailsburg—No vote.

Mr. Phraner having received the majority of the votes cast was declared elected Treasurer.

The Chairman then called for nominations for the election of Counsel.

Mr. Kip, of South Orange, nominated Mr. Adrian Riker, of Newark, as Counsel. The nomination was duly seconded. On motion, duly seconded, the nominations were closed. Messrs. Rollinson and Kip acted as tellers, and the vote being polled, the Secretary announced the result as follows:

Newark—No vote.
Irvington—Adrian Riker.
Milburn—Adrian Riker.
Summit—Adrian Riker.
West Orange—Adrian Riker.
South Orange—Adrian Riker.
Vailsburg—No vote.

The Chairman then announced that it was in order to make nominations for Engineer. Mr. Lyon, of Milburn, nominated Mr. Alex. Potter. Mr. Campbell, of South Orange, nominated Mr. F. T. Crane. The nominations were duly seconded.

Mr. Campbell spoke in behalf of Mr. Crane, stating that the plans as completed by Mr. Potter were originally devised by Mr. Crane, and that Mr. Crane should receive the whole credit for the plans submitted as Mr. Potter's.

Mr. Cunningham, of West Orange, spoke in behalf of Mr. Potter, as did Mr. Lyon, of Milburn. The latter stated that the plans submitted by Mr. Potter were original plans, and not the plans of Mr. Crane. He quoted, as his authority for this statement, Mr. Robert S. Sinclair, of South Orange, as a former member of the Board of Trustees and Sewer Committee of that municipality.

Mr. Speir also spoke in favor of Mr. Potter, stating that the municipalities in passing the Joint Sewer Ordinance had prac-

tically endorsed the plans of Mr. Potter, and that he was the logical person for the position of Engineer of the joint system.

A vote for Engineer was then canvassed. Messrs. Kip and Rollinson acting as Tellers, and the Secretary announced the result of the vote as follows:

Newark—No vote.
Irvington—Alex. Potter.
Milburn—Alex. Potter.
Summit—Alex. Potter.
West Orange—Alex. Potter.
Vailsburg—No vote.
South Orange—Alex. Potter.

Mr. Potter having received the majority of the votes was declared elected Engineer.

Mr. Speir, of South Orange, then made the following motion, which was seconded, by Mr. Lyon:

That a committee of one from each municipality be appointed by the chair to consider, report and recommend the amount of compensation to be paid to the officers, agents and servants elected by the joint body, and to consider, frame, report and recommend rules for procedure and government under the act and to consider, report on and recommend such other matters as may from time to time be referred to such committee.

Mr. Ballard, of Newark, offered an amendment to the motion, substituting the words "by each municipality" for "by the chair." Mr. Speir and Mr. Lyon accepted the amendment and the motion was carried by unanimous vote. Mr. Speir then moved that the matter of obtaining quarters for future meetings be referred to the committee, and the motion, being duly seconded, was unanimously carried.

Mr. Weeks then moved that the meeting adjourn to meet three weeks from March 27th. Mr. Kip offered an amendment to Mr. Weeks's motion, substituting the word "two" for "three." Mr. Weeks accepted the amendment and Mr. Kip's motion, being duly seconded, was unanimously carried. On motion meeting adjourned.

Graham H. Brewer,
Temporary Secretary.

Joint Meeting of April 10, 1901.

Joint Meeting held at the rooms of the Board of Street and Water Commissioners, Newark, N. J., Wednesday, April 10th, at 4 p. m.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark. Minutes of last meeting were read, and, on motion, approved.

Mr. Lyon moved that the Committee on Rules and Compensation of Officers, etc., make their report. Motion being duly seconded and carried, the report was read as follows:

"The committee heretofore authorized by the Joint Meeting at its last meeting makes the following report:

"Owing to unavoidable delays in the constitution of the committee it has been unable to fully consider and report upon all the matters referred to it. It, however, herewith submits a skeleton form of rules which seem to it to be all that is required for the immediate purposes of the Joint Meeting.

"It requests further time to consider and recommend to the Joint Meeting compensation to be paid to the different officers of the Joint Meeting, and also further time to inquire into and report upon the office and meeting place for the Joint Meeting. It recommends that immediate steps be taken to secure the consent of the City of Elizabeth, the Township of Union and the Township of South Orange, in the County of Essex, to the construction of the proposed trunk sewers through those municipalities, as provided by the statute.

"It also recommends that application be made to the State Sewerage Commission for authority to locate its outlet at the point shown on the plans and that communication be had at once with the United States authorities on the subject of the discharge of the sewerage into the navigable waters under control of the United States Government.

"It further recommends that immediate steps be taken to secure the necessary private rights of way for the construction of the proposed sewer.

"All of which is respectfully submitted."

(Signed by the Committee.)

RULES OF THE JOINT MEETING.

Meetings.

"The stated meetings of the Joint Meeting shall be held on the second Wednesday of each month at the hour of eight o'clock in the evening at the meeting room of the Joint Meeting to be here-

after secured, and until such meeting room shall have been secured said meeting shall be held at the rooms of the Board of Street and Water Commissioners of the City of Newark.

SPECIAL MEETINGS.

"Special meetings may be called by the Permanent Chairman of the Joint Meeting at such times as he may think proper, and of which special meeting two days' notice shall be given by the Secretary by a written notice mailed to each member of the governing bodies forming the Joint Meeting.

"Special meetings shall also be called by the Permanent Chairman upon like notice by direction of the Executive Committee.

COMMITTEES.

"There shall be an Executive Committee to consist of seven members, one to be chosen by the governing body of each municipality composing the Joint Meeting.

"The Executive Committee is hereby empowered to constitute such sub-committees as it may deem proper for the expedition of its work.

ORDER OF BUSINESS.

"The order of business for the Joint Meeting shall be as follows:

"1. Roll call of the Municipalities.
"2. Reading of the Minutes of the Previous Meeting.
"3. Report of Committees.
"4. Unfinished Business.
"5. New Business.
"6. Adjournment."

Mr. Eschenfelder moved that the report be approved and placed on file. Motion being duly seconded, vote was taken and motion carried, all municipalities voting aye.

Counsel stated that while the report had been approved the rules had not been adopted and suggested that a motion be made to that effect.

Mr. Rollinson moved that the rules be adopted. Chair asked if Mr. Rollinson meant to adopt the rules as a whole or section by section. Mr. Rollinson said it was immaterial to him; that he made the motion so as to bring the matter before the Committee.

Mr. Eschenfelder moved that the rules be considered as a whole, not section by section. On motion being seconded vote was taken by the Secretary and motion duly carried, all municipalities

voting aye. On motion rules were adopted as a whole, all municipalities voting aye.

Chair announced that the next business was the appointing of a Permanent Executive Committee.

Mr. Speir made the following motion: That a committee of one be appointed by each municipality to make up a Permanent Executive Committee and that they report in a week the names of representatives so appointed. Motion was duly seconded.

Mr. Cunningham said that inasmuch as the Town Council of West Orange would not meet for two weeks it would be impossible to report the names of the representatives from West Orange in a week.

Mr. Lyon offered the following amendment to the motion: That the Executive Committee be composed of the same representatives as were appointed as a committee to draw rules and fix compensation of officers, etc., together with representatives from municipalities where same were yet to be appointed. Mr. Speir accepted the amendment, and, on vote being taken, motion as amended was duly carried, all municipalities voting aye.

On suggestion of Mr. Riker chair asked members of Executive Committee to remain after adjournment of meeting to fix date for their next meeting.

Mr. Speir moved that when the meeting adjourn it would adjourn to meet in two weeks at the Town Hall, in South Orange, at 8:30 p. m. On motion being duly seconded, vote was taken and motion carried, all municipalities voting aye.

On motion meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of April 24, 1901.

Joint Meeting held at the Town Hall in South Orange, Wednesday, April 24th, at 8:30 p. m.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark.

Minutes of last meeting were read and on motion approved.

Chair called for report of Executive Committee, which was read as follows:

"The Executive Committee respectfully reports to the Joint Meeting as follows:

"Your Committee has taken into consideration the question submitted to it of the salaries or other compensation to be paid to the various officers heretofore appointed by the Joint Meeting, and makes the following recommendations:

"1. That there shall be paid to the Permanent Chairman of the Joint Meeting a salary at the rate of five hundred dollars a year from the date of his appointment.

"2. That there shall be paid to the Treasurer of the Joint Meeting a salary at the rate of six hundred dollars a year from his appointment until such time as the contract shall have been made by the Joint Meeting for the construction of the proposed sewer, from which date the salary of the Treasurer shall be at the rate of twelve hundred dollars a year and that he shall give bond for the faithful performance of his duties in the penal sum of fifty thousand dollars, with surety to be approved by this Committee.

"3. That the salary of the Secretary shall be at the rate of one thousand dollars a year until such time as permanent officers for the Joint Meeting shall have been secured, and from that time at the rate of fifteen hundred dollars a year.

"4. That the Counsel of the Joint Meeting shall receive a retainer of one thousand dollars a year, and shall receive reasonable compensation for actual time engaged in the business of the Joint Meeting.

"5. That the compensation of the Engineer shall be at the rate of five per cent. upon the actual amount of the cost of the work contemplated in the contract entered into by the municipalities composing the Joint Meeting; that such compensation shall not exceed five per cent. of the gross amount of the estimate of the cost of said work heretofore furnished by the Engineer to said municipalities, unless additional work shall be caused by substantial additions to the plans. The Committee herewith presents a form of contract which it recommends for adoption by the Joint Meeting with its Engineer.

"Your Committee further recommends that there shall be ap-

pointed an officer to be known as Assistant Counsel and that J. Randolph Woodruff, Esq., be appointed to that office for one year at a salary of five hundred dollars. This recommendation is made in view of the fact that Counsel of the Joint Meeting is not to receive any salary, but a retainer only, and to be allowed to charge for services rendered, it being the view of the Committee that Assistant Counsel can relieve the Counsel of a considerable amount of work, particularly in the matter of securing private rights of way.

"Your Committee further reports that it has considered the question of securing permanent offices and meeting rooms for the Joint Meeting and has reached this conclusion: That until a large amount of preliminary work in the securing of municipal consents and private rights of way has been accomplished, it will not be necessary to incur the expense of having such offices and meeting rooms.

"Your Committee would recommend that it be authorized to employ agents to negotiate with the owners of land for the right of way for the sewer, such agents not to exceed five in number, and to receive a salary not to exceed ten dollars a day, for their services while actually engaged in this work. Respectfully,"

Mr. Eschenfelder offered the following resolution:

"Resolved, That the report of the Executive Committee be received and placed on file, and that its recommendations in respect to the salaries to be paid to the various officers of the Joint Meeting, also appointment of an Assistant Counsel and the salary to be paid to him, and also with respect to the employment of agents to secure private rights of way; also with respect to the bond to be given by the Treasurer be concurred in and adopted.

"Resolved, further, That the form of contract with the Engineer submitted by the Committee be approved and the officers authorized to execute the same with such incidental modifications as may seem to it proper."

Mr. Brewer seconded the resolution.

Counsel read contract with Engineer. Mr. Glorieux moved that resolution offered by Mr. Eschenfelder be taken up section by section. Motion seconded and carried, all municipalities voting aye.

Salary of assistant counsel taken up. Mr. Franklin moved that Mr. Woodruff be engaged as assistant counsel at the rate recommended by the Executive Committee. Motion seconded and on vote being taken, motion was carried, all municipalities voting aye.

Employment of agents to secure private rights of way taken

up. Mr. Cunningham moved that two thousand dollars be appropriated by the Joint Meeting to secure private rights of way. Motion seconded by Mr. Lyon. On vote being taken motion was carried, all municipalities voting aye.

Treasurer's bond taken up. Mr. Franklin moved that the resolution in regard to the Treasurer's bond be approved. Motion seconded and on vote being taken motion was carried, all municipalities voting aye.

Engineer's contract taken up. Mr. Cunningham moved that resolution in regard to the form of contract with the Engineer be approved.

Motion seconded.

Mr. Potter said that it was unprofessional for an Engineer to give a bond, and that he was unwilling to do so, but was agreeable to the other conditions in the contract.

Mr. Riker said that in view of the fact that there were so many cases where a sewer might be deficient he thought someone ought to be held responsible, as a guarantee of good work.

Mr. Potter said he would be willing to give a bond if the American Society of Civil Engineers would sanction such action on his part.

Mr. Glorieux asked if Mr. Potter would be willing to have some of his commission held back.

Mr. Potter said he would be willing to have two thousand dollars held back.

Mr. Franklin moved that the Engineer give bond as recommended by the Executive Committee, provided that the American Society of Civil Engineers would not condemn such action as unprofessional; otherwise that three thousand dollars be held back until completion of the work. Motion seconded. Mr. Glorieux offered an amendment that five thousand be substituted for three thousand. Seconded by Mr. Cunningham.

Mr. Potter said that five thousand dollars would be his net earnings.

Mr. Buckley said that in view of that fact he thought three thousand sufficient.

Mr. Eschenfelder said he agreed with Mr. Buckley.

On vote being taken the motion as amended by Mr. Glorieux

was not carried, the municipalities voting as follows: Irvington and West Orange, aye; Milburn, Summit, South Orange and Vailsburg, voting nay.

Original motion was put, and, on vote being taken, was carried, the municipalities voting as follows: Milburn, Summit, South Orange and Vailsburg voting aye; Irvington and West Orange voting nay.

Mr. Franklin moved that the Secretary communicate with the American Society of Civil Engineers in regard to an Engineer giving bond. Motion seconded, and, on vote being taken, was carried, all municipalities voting aye.

Mr. Franklin moved that the resolution in regard to the salaries of officers be approved. Motion seconded, and, on vote being taken, was carried, all municipalities voting aye.

Mr. Eschenfelder offered the following resolution:

"Resolved, that the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of five thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer, designated as 'XA.' Be it further

"Resolved, That the Secretary give notice to the various municipalities of such assessment and the proportion thereof to be paid by each of the municipalities; and

"Resolved, further, That said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the twenty-fourth day of April, 1901."

Resolution seconded, and, on vote being taken, was carried, all municipalities voting aye.

Mr. Glorieux moved that the Secretary communicate with Mr. Sinclair and Mr. Menzel in regard to obtaining papers and documents relating to the preliminary work on the sewer. Motion seconded, and, on vote being taken, was carried, all municipalities voting aye.

Mr. Cunningham moved that the Secretary be empowered to get suitable books for the minutes and stationery. Motion seconded, and, on vote being taken, was carried, all municipalities voting aye.

Mr. Eschenfelder moved that the rule that the Joint Meeting should be held on the second Wednesday of each month be

amended to read the second Thursday, and that the next meeting be held at the Town Hall in South Orange. Motion seconded, and, on vote being taken, was carried, all municipalities voting aye.

Counsel said that all accounts of preliminary expenses should be submitted at the next meeting.

Question was asked as to what he referred. Mr. Riker replied that he referred to his and Mr. Price's charges.

Mr. Rollinson moved that the Secretary communicate with Mr. Riker and Mr. Price and ask for their bills for professional services and disbursements incurred in preliminary proceedings of Sewer Committee. Motion seconded, and, on vote being taken, was carried, all municipalities voting aye.

On motion meeting adjourned.

W. Rollinson,
Secretary.

Representatives of Governing Boards or Bodies of the Various Municipalities for 1901-2.

CITY OF NEWARK.

George M. Ballard (President of Board of Street and Water Commissioners),
W. C. Garrison,
J. S. Vinson,
C. V. Baumann.
Jos. M. Byrne,

TOWN OF IRVINGTON.

W. S. Glorieux, Councilman-at-Large,
E. D. Tuttle,
John W. Wolf,
Dayton O. Meeker,
Frank R. Sharp,
August Lacomb.

TOWNSHIP OF MILBURN.

Charles O. Lyon, Chairman,
Charles W. Cox,
R. G. Marsh.

CITY OF SUMMIT.

George Wilcox, Mayor,
Charles S. Day, President,
Charles F. Wood,
Ruford Franklin,
John E. Sayre, Jr.,
George C. Hand,
A. A. Buckley,
George W. Baldwin.

VILLAGE OF SOUTH ORANGE.

Ira A. Kip, Jr., President,
Francis Speir, Jr.,
Graham H. Brewer,
Harmon H. Hart,
Charles S. Dodd,
William C. Metcalfe,
Walter I. McCoy.

BOROUGH OF VAILSBURG.

Thomas Connelly, Mayor,
F. J. Reynolds,
Andrew Eschenfelder,
William Welcher,
Emil Harms,
Louis Klenngott,
George A. Froelich.

TOWN OF WEST ORANGE.

S. H. Rollinson, Councilman-at-Large,
Thomas Cunningham,
Irven Kenney,
Max Brodesser,
Edward Glasier,
Thomas Gannon,
William P. Condit,
Herman Frye,
John Otterbein.

Chairman of Joint Meeting—E. D. Tuttle.
Secretary of Joint Meeting—William Rollinson.
Counsel——Adrian Riker.
Assistant Counsel—J. Randolph Woodruff.
Engineer—Alexander Potter.

Joint Meeting of May 14, 1901.

Joint Meeting held May 14, at Village Hall in South Orange.

On roll being called it was found that all of the municipalities were represented with the exception of Newark and Milburn.

Minutes of last meeting were read and on motion approved.

The chair called for the report of the Executive Committee. Mr. Speir, Chairman of the Executive Committee, said that the Committee had appointed two sub-committees to deal with private and municipal rights of way and that these sub-committees had started in on their work and hoped to have some definite report to make by next meeting.

Treasurer's bond for $50,000 was read. Mr. Franklin, of Summit, moved that it be approved and placed on file. Motion being duly seconded, vote was taken and motion carried, all municipalities voting aye.

Bill of Riker & Riker in the sum of $696.04 for professional services and disbursements in preliminary work on the sewer was read, and, on motion of Mr. Cunningham, of West Orange, ordered paid, all municipalities voting aye.

Bill of Grover Brothers in the sum of $10, for stationery, was read, and, on motion of Mr. Eschenfelder, of Vailsburg, ordered paid, all municipalities voting aye.

Mr. Glorieux, of Irvington, said that in view of the fact that the Executive Committee spent a great deal of their time in procuring private and municipal rights of way, it was his opinion they should receive some compensation, and that he would offer the following resolution:

"Resolved, That each member of the Executive Committee shall receive a salary at the rate of $300 per annum."

Resolution seconded by Mr. Cunningham, of West Orange. Mr. Speir, of South Orange, suggested that before this resolution was voted on that the Counsel be consulted as to the legality of the Joint Meeting voting a salary to the Executive Committee. Mr. Franklin, of Summit, moved that the matter be laid on the table, and that the Secretary be authorized to communicate with Counsel as to the legality of the resolution. Motion was seconded, and, on vote being taken, was carried, all municipalities voting aye.

Secretary read communication from the American Society of Civil Engineers in regard to an Engineer giving a bond.

Mr. Speir, of South Orange, moved that Counsel be authorized to draw contract with the Engineer substituting the right to hold back $3,000 in lieu of bond for the faithful performance of his work. The motion being seconded vote was taken and motion carried, all municipalities voting aye.

Mr. Cunningham, of West Orange, moved that the Secretary have the minutes of the Joint Meeting printed after each meeting, and that a copy of them be sent to each representative of the various municipalities. On motion being seconded vote was taken and motion carried, all municipalities voting aye.

Mr. Speir, of South Orange, moved that when the meeting adjourn it would adjourn to meet at the Village Hall in South Orange. On motion being seconded vote was taken and motion carried, all municipalities voting aye.

On motion meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of June 13, 1901.

Joint Meeting held June 13, at Village Hall in South Orange, at 8 p. m.

On roll being called it was found that all of the municipalities were represented.

Minutes of last meeting were read, and, on motion, approved

Chair called for report of Executive Committee.

Mr. Speir (Chairman of Executive Committee) said that they had done nothing definite as yet and could simply report progress.

Communication from Counsel as to the legality of the Joint Meeting voting a salary to the members of the Executive Committee, was read.

Mr. Franklin, of Summit, moved that the communication be received and placed on file, and that the resolution, "That each member of the Executive Committee shall receive a salary at the rate of three hundred dollars ($300) per annum," be taken up. Motion duly seconded and carried, all municipalities voting aye.

Mr. Wolf, of Irvington, moved that the resolution be adopted. Motion seconded by Mr. Reynolds. Mr. McCoy, of South Orange, offered an amendment, "That this salary be received in lieu of expenses incurred by members of the Executive Committee individually." Mr. Wolf and Mr. Reynolds accepted the amendment, and resolution, as amended, was unanimously carried.

Mr. McCoy moved that the resolution take effect as of the meeting of its adoption. Motion seconded and carried, all municipalities voting aye.

Mr. Speir said that it was the unanimous opinion of the Executive Committee that the resolution fixing Mr. Woodruff's salary be amended and that he would offer the following resolution:

"That the terms of the employment of Mr. Woodruff, the Assistant Counsel, appointed for one year, be changed, so that he shall receive a retainer of five hundred ($500) dollars per annum, and be permitted to charge for services rendered such reasonable sum as shall be approved by the Executive Committee."

Resolution was duly seconded and carried, all municipalities voting aye.

Bill of E. L. Price in the sum of sixteen hundred dollars ($1600) for professional services in preliminary work on the sewer was read, and, on motion of Mr. Franklin, of Summit, was referred to the Executive Committee for consideration.

Mr. Speir moved that the sum of five hundred dollars be paid Mr. Potter on account of services rendered, same to be charged to his account for commissions, or other compensation under his contract as Engineer of the Joint Meeting. Motion duly seconded and carried, all municipalities voting aye.

Mr. Tuttle, of Irvington, said that inasmuch as his duties as a member of the Executive Committee took as much of his time as he could spare, he would offer his resignation as Permanent Chairman of the Joint Meeting.

Mr. Speir moved that Mr. Tuttle's resignation be accepted, with regret. Motion duly seconded and carried, all municipalities voting aye.

Mr. Lacomb nominated Mr. W. L. Glorieux, of Irvington, as Permanent Chairman of the Joint Meeting. Nomination duly seconded. On motion, duly seconded, the nominations were closed.

Two ballots were taken per capita present and by municipalities, Messrs. Lacomb and Speir acting as Tellers.

On the first ballot twenty-three votes were cast, all of which were for Mr. W. L. Glorieux, of Irvington.

The vote by municipalities was as follows

Newark—W. L. Glorieux.
Irvington—W. L. Glorieux.
Milburn—W. L. Glorieux.
Summit—W. L. Glorieux.
West Orange—W. L. Glorieux.
South Orange—W. L. Glorieux.
Vailsburg—W. L. Glorieux.

Mr. W. L. Glorieux, having received all the votes cast, was declared unanimously elected Permanent Chairman.

Mr. Glorieux, being duly sworn and qualified by Mr. Woodruff, Assistant Counsel, thereupon took the chair.

On motion of Mr. Speir meeting went into executive session.

* * * * * * * * * * *

On motion of Mr. Speir meeting adjourned to meet at the Village Hall in South Orange, subject to call of the chair.

Wm. Rollinson,
Secretary.

Joint Meeting of July 22, 1901.

Joint Meeting held July 22d at the Village Hall, in South Orange, at 8 p. m.

In the absence of Mr. Glorieux, chairman, Mr. Speir, of South Orange, was elected to take the chair. On roll being called, it was found that all of the municipalities were represented, with the exception of Irvington. On motion the reading of the minutes of previous meeting was dispensed with. Mr. Glorieux arrived and took the chair. On motion the meeting went into executive session.

The question of obtaining the right of way through Elizabeth was taken up and communications between the Executive Committee and the Sewer Committee of Elizabeth were read and discussed.

After a recess the Joint Meeting went into open session.

Mr. Speir then read the communication of the Special Sewer Committee of the City of Elizabeth, addressed to A. A. Buckley, Esq., Chairman, etc., of Committee of Joint Municipalities, etc., bearing date July 20th, 1901, and signed by D. T. Collins, Chairman.

After discussion of the communication, Mr. Cunningham, of West Orange, offered the following resolution:

"Resolved, That the terms and conditions as set forth in a communication of the Special Sewer Committee of the City of Elizabeth, addressed to A. A. Buckley, Esq., Chairman, etc., of Committee of Joint Municipalities, etc., bearing date July 20th 1901, and signed by D. T. Collins, Chairman, be rejected."

The resolution having been duly seconded, a vote was taken and on roll call the following municipalities voted aye: Newark, Vailsburg, South Orange, West Orange, Milburn, Summit and Irvington.

Mr. Cunningham moved that the Secretary be instructed to notify the City of Elizabeth of said resolution. The motion being duly seconded, a vote was taken and motion unanimously carried.

Mr. Cunningham offered the following resolution:

"Resolved, That the Counsel and Associate Counsel be, and they are hereby, authorized to take such legal proceedings as may be necessary to procure the right to lay and construct a trunk line sewer through the City of Elizabeth, as shown by the plans prepared by Alexander Potter.

"Resolved, further, That the Executive Committee of the Joint Meeting be, and they are hereby, authorized to assist, take charge of and direct the aforesaid legal proceedings."

Resolution being duly seconded, vote was taken and the resolution unanimously carried.

Mr. Speir said that he had received a communication from Morristown applying for the privilege to join with the various municipalities in their proposed trunk sewer.

Mr. Franklin, of Summit, moved that the communication be referred to the Executive Committee for consideration. On the motion being duly seconded, a vote was taken and the motion unanimously carried.

Mr. Eschenfelder, of Vailsburg, reported that the committee appointed to lease rooms for the Joint Meeting had decided on rooms in the Century Building, on Market street, Newark, as the cheapest and most suitable for the Joint Meeting, and that he would offer the following resolution:

"Resolved, That the President and Secretary of the Joint Municipalities Sewer Commission be, and they are hereby, authorized to make and execute a lease, for a term of three years, beginning August 1st, 1901, for the three rooms, 501, 502 and 503, on the fifth floor of the Century Building, in Newark, N. J., at the yearly rental of six hundred and fifty dollars, payable monthly."

The resolution being duly seconded, a vote was taken and the resolution carried, all municipalities voting aye.

The bill of Alexander Potter, in the sum of five hundred dollars, for services rendered as Engineer during the month of June, was read. Mr. Speir moved that Mr. Potter be paid five hundred dollars on account of services rendered, the same to be charged to his account for commissions or other compensation under his contract as Engineer of Joint Meeting. Motion being duly seconded, a vote was taken and the motion unanimously carried.

The bill of the Orange Journal, in the sum of thirty-one dollars and fifteen cents, for printing the minutes of the Joint Meeting up to date, and for printing three hundred stamped No. 10 envelopes, was read and on motion ordered paid.

The bill of the Orange Chronicle, in the sum of six dollars, for printing two hundred stamped envelopes for Secretary, was read, and on motion ordered paid.

Mr. Eschenfelder moved that when the meeting adjourned it would adjourn to meet at the rooms of the Century Building, Newark. Motion being duly seconded, a vote was taken and motion unanimously carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of August 8, 1901.

Joint Meeting held August 8 at the Village Hall in South Orange at 8 p. m.

On roll being called it was found that there was not a majority of the municipalities represented, and meeting was adjourned for one week, to meet at the rooms of the Joint Meeting in the Century Building, Newark, N. J., at 8 p. m.

WM. ROLLINSON,
Secretary.

Joint Meeting of August 15, 1901.

Joint Meeting held August 15 at the meeting rooms, Century Building, Newark, N. J., at 8 p. m.

On roll being called it was found that all of the municipalities were represented, with the exception of West Orange.

Minutes of previous meeting read and on motion approved.

Chair called for report of the Executive Committee. Mr. Speir (Chairman of Executive Committee) read the following report:

The Executive Committee respectfully reports to the Joint Meeting as follows:

"Your Committee has considered the different matters submitted to it, and makes the following recommendations:

"That the bill of Colonel E. L. Price in the sum of sixteen hundred dollars, for professional services rendered in the preliminary work on the sewer, be paid.

"That the bill of Robert S. Sinclair in the sum of forty-two ($42) dollars, for money expended by him in preliminary work on sewer, be paid.

"Your Committee reports that the communication from E. Hurtzig, Chairman on Sewerage for Morristown, asking for privilege to joint with the Joint Municipalities in their trunk sewer, was consdered and referred to Counsel for legal opinion.

"Your Committee further reports that in the matter of directing the legal proceedings to obtain the right-of-way through the City of Elizabeth, pursuant to the instructions of the Joint Meeting, your Committee directed the application to Judge Van Syckel for an order to show cause why Commissioners should not be appointed, to be made by the Assistant Counsel, as Attorney, in the absence of the Counsel.

"And your Committee further directed the Assistant Counsel to publish the notice and order in newspapers circulating in Essex and Union Counties, as required by law.

"And your Committee further directed the sub-committee appointed by the Joint Meeting to lease rooms and offices for the Joint Meeting, to buy suitable furniture for the same.

"All of which is respectfully submitted.

Signed by the "EXECUTIVE COMMITTEE."

Mr. Eschenfelder moved that the report of the Executive Committee be approved and that the recommendations be concurred in. Motion being duly seconded, vote was taken and motion unanimously carried.

Mr. Baumann moved that the committee appointed to furnish the rooms of the Joint Meeting be instructed to buy wooden chairs for all the members similar to the one bought for the Chairman. Motion being duly seconded, vote was taken and motion carried.

Question of the right-of-way through Elizabeth taken up.

Mr. Speir reported the dealings of the Executive Committee with the City of Elizabeth and explained the final steps as taken by the Assistant Counsel.

Mr. Riker said that he thought the position of the Joint Meeting was a good one, and that he thought the Court would grant the order to appoint Commissioners.

Communications from Morristown were taken up.

Mr. Riker explained that under the statute the Joint Meeting had the power to take in any towns on the line of the proposed sewer, but since Morristown did not lie on the line of the sewer, it would be necessary, before it could join in the sewer, to pass new ordinances, etc., or practically begin all over again, and for this reason he thought it would not be feasible.

Mr. Speir moved that the communication of Mr. Hurtzig, Chairman of the Committee on Sewerage of Morristown, be an-

swered to the effect that it was not feasible to take them in at present and that the Secretary be instructed to notify them of that fact. On motion being duly seconded, vote was taken and motion carried.

Mr. Glorieux reported that he had not signed Mr. Potter's warrant as passed by the Joint Meeting, because the contract between Mr. Potter and the Joint Meeting had not been executed. He said that when the bill was passed he thought the contract had been properly signed and he believed most of the representatives had the same impression. Mr. Glorieux further stated that he wanted to know what was the sense of the Joint Meeting before he signed the warrant.

Mr. Speir moved that it be the sense of the Joint Meeting that Mr. Potter be paid the $500, as passed by the Joint Meeting July 22, 1901. On motion being duly seconded, vote was taken and motion carried.

On motion of Mr. Buckley, Secretary was instructed to notify Mr. Potter to send the contract with such alterations or modifications as he might have made to the Counsel of the Joint Meeting for consideration.

Mr. Eschenfelder, of Vailsburg, moved that the Secretary be instructed to communicate with the various municipalities for the purpose of finding out if they had contributed their share in the preliminary expenses of the sewer, and if any municipality had not paid its share to send in a bill for the same. On motion being duly seconded, vote was taken and motion carried.

Bill of Colonel E. L. Price in the sum of sixteen hundred dollars ($1600), for professional services rendered in preliminary work on sewer, was read, and, on motion, ordered paid.

Bill of Robert S. Sinclair in the sum of forty-two dollars ($42), for money expended by him in the preliminary work on the sewer, was read and on motion ordered paid. Mr. Speir moved that the rent to be charged Mr. Woodruff for use of room as an office and also the amount to be charged Mr. Potter in the event of his using rooms of the Joint Meeting be referred to the Executive Committee for consideration. Motion duly seconded and carried.

On motion meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of August 26, 1901.

Joint Meeting held August 26, 1901, at 8 p. m., in the meeting room of the Joint Sewerage Commission in the Century Building, Newark, N. J.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark.

On motion reading of the minutes of previous meeting was dispensed with. Mr. Eschenfelder, of Vailsburg, offered the following resolution:

"Resolved, That the Counsel and Associate Counsel be required to press the application for the appointment of Commissioners to assess the damages for rights of way, to be taken by the Joint Body, for the proposed construction and maintenance of a joint sewer in Bayway and to appear in Court on the twenty-eighth day of August, 1901, before Judge Van Syckle in the Court House of the City of Elizabeth at ten o'clock in the morning, in support of such application."

Resolution duly seconded, and, on vote being taken, was unanimously carried.

Mr. Buckley, of Summit, offered the following resolution:

"Resolved, That the Chairman of the Executive Committee and the Chairman and members of the Committee on Municipal Rights-of-Way be instructed to be present at the Court House in the City of Elizabeth on the twenty-eighth day of August, 1901, at 10 o'clock in the morning, when Judge Van Syckle gives hearing of application of the Joint Meeting or the appointment of Commissioners to assess damages for rights-of-way for the proposed construction and maintenance of a joint sewer in Bayway."

Resolution duly seconded, and, on vote being taken, was unanimously carried.

Mr. Tuttle, of Irvington, moved that when the meeting adjourned it would adjourn to meet at the meeting rooms in the Century Building, Newark, N. J., on Tuesday, August 27, 1901, at 8 p. m.

On motion meeting adjourned.

Wm. Rollinson,
Secretary.

Joint Meeting of August 27, 1901.

Joint Meeting held August 27, 1901, at the meeting rooms in the Century Building, Newark, N. J., at 8 p. m.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark.

On motion reading of the minutes of previous meetings was dispensed with.

On call of report of the Executive Committee Mr. Speir read the following report:

Report of the Executive Committee:—"The Executive Committee, to avoid litigation, took up the question of an amicable arrangement with the Mayor and authorities of the City of Elizabeth for the grant of the right by the City of Elizabeth to construct and maintain a joint trunk sewer in Bayway.

"After conferences had, they have come to an understanding as to the terms and have this 27th day of August approved of a memorandum of agreement signed by Francis Speir, Jr., as Chairman of the Executive Committee, and J. R. Woodruff, as Attorney on behalf of the joint body, and by Dennis F. Collins, Chairman of the Elizabeth Special Sewer Commission, and James Connolly, as Attorney on behalf of the City of Elizabeth.

"They have advised and requested Counsel to adjourn the hearing on the order to show cause to the next term of the Circuit Court of Union County, and the same has been done, pending formal execution and delivery of a contract between the joint municipalities and the City of Elizabeth, and the passing of the necessary ordinance by Elizabeth to carry out the terms of the annexed Terms of Agreement.

"Your Committee recommends that its actions as aforesaid be approved, that the agreement be made the agreement of this body and that a formal contract be entered into carrying out the Memorandum of Terms of Agreement annexed hereto when the formal contract has been approved by Counsel.

"Dated August 27, 1901.

"Francis Speir, Jr.,
"Chairman."

Albrow A. Buckley, Andrew Eschenfelder,
Thomas Cunningham, E. D. Tuttle,
Charles W. Cox.

Mr. Speir then read the following Memorandum of proposed Agreement with the City of Elizabeth:

"Memorandum of the Terms of the Proposed Agreement Between the Joint Municipal Bodies Composed of the Cities of Newark, Summit, Towns of Irvington, West Orange, Village of South Orange, Township of Milburn and Borough of Vails-

burg, Parties of the First Part, and the City of Elizabeth, Party of the Second Part:

"First—The party of the second part grants and conveys to the parties of the first part the right to construct and maintain in and along Bayway, in the City of Elizabeth, a joint trunk or outlet sewer.

"Second—That the joint trunk or outlet sewer when constructed within the City of Elizabeth shall extend as follows: Beginning at high-water line on Staten Island Sound at the southern end of the public street or highway of the City of Elizabeth known as Bayway, extending thence along Bayway for about 14,843 feet to the intersection of the Central Railroad of New Jersey; thence at or along the division line between the City of Elizabeth and the Township of Union about 2,229 feet, as shown in Map to be filed in the office of the Surveyor of the City of Elizabeth.

"Third—That the size of said joint trunk or outlet sewer, when built and constructed, shall be of the following size, viz.: From its entrance into the City of Elizabeth to Woodbridge Avenue, in said city, not more than 42 inches in diameter; from thence to Princeton Avenue 66 inches in diameter, and from thence to its outlet at Staten Island Sound 72 inches in diameter. That the grade of invert of said sewer to be adopted through the City of Elizabeth shall be 6 feet below the street surface at Jersey Avenue; 2 1/2 feet at Pennsylvania Railroad, 6 feet at South Broad Street, 9 feet at Woodbridge Avenue, and 6 inches above mean low water at Staten Island Sound.

"Fourth—That when the said joint trunk or outlet sewer is built and constructed, manholes shall be constructed and placed, by the parties of the first part at their own expense, thereon at every present street intersection, which manholes shall be so arranged that laterals for house drainage can be properly connected in the future; and also for all surface drainage provided for hereinafter below Woodbridge Avenue.

"Fifth—That when the said joint trunk or outlet sewer is built or constructed, the party of the first part shall and will at their own expense, insert and put in place proper Y-branches or slants throughout the length of said sewer within the City of Elizabeth, except where the depth of said sewer is more than 13 feet, and also except that for the length of said joint trunk or outlet sewer paralleled by the Summer Street Sewer of the City of Elizabeth, the said proper Y-branches or slants shall be inserted on one side only.

"Sixth—That the party of the second part shall, on and after the completion of the whole of said joint trunk or outlet sewer, be entitled to a drainage therein of 100,000 cubic feet per diem thereof, that being the maximum amount which the parties hereto agree shall belong to the party of the second part for the requirements for house drainage by the party of the second part in the joint trunk or outlet sewer, it being understood and agreed that

all of said 100,000 cubic feet per diem of house drainage shall come exclusively from within the limits of the City of Elizabeth. To insure said capacity of 100,000 cubic feet per diem in said joint trunk or outlet sewer in Bayway for the exclusive use of the party of the second part, the manhole thereof at or near the limits of the City of Elizabeth shall be so built that the sewage flowing therein may at any time be measured by Weir measurements.

"Seventh—That the party of the second part shall, within the limits of the City of Elizabeth, at no time permit any substance other than house drainage to flow or be deposited in the said joint trunk or outlet sewer, except as hereinafter provided, viz.: The party of the second part from and after the completion of the whole of said trunk or outlet sewer shall be entitled to discharge in the portion thereof extending on Bayway, from Woodbridge Avenue to the outlet at Staten Island Sound, all surface drainage that they desire to put therein.

"Eighth—That a bulkhead shall be constructed on Staten Island Sound by the parties of the first part, at their own expense, at the bulkhead line of Bayway, directly over the outlet of said joint trunk sewer, in place of running said sewer to the middle of the channel of Staten Island Sound, as originally proposed by the parties of the first part.

"Ninth—That an Inspector shall be appointed by the City of Elizabeth to examine the construction of said joint trunk or outlet sewer within the limits of the City of Elizabeth, at a salary of $3.50 per diem, to be paid by the parties of the first part; that the services of said Inspector shall begin when the construction of the joint trunk or outlet sewer has actually commenced within the limits of the City of Elizabeth, and shall cease upon the completion of the same within the limits of the City of Elizabeth, as evidenced by the certificate of the Chief Engineer in charge of the construction of the same.

"Tenth—That previous to the advertising of or letting the contracts for the construction of said joint trunk or outlet sewer the complete general plans for the portion thereof lying within the City of Elizabeth shall be filed by the parties of the first part in the office of the City Surveyor of said last-mentioned city.

"Eleventh—That when the said joint trunk or outlet sewer shall be fully completed the right to make house connections in the portion thereof along said Bayway within the limits of the said City of Elizabeth, with the Y-branches or slants to be placed thereon by the parties of the first part in accordance with the requirements of Clause 'Fifth,' and to charge the abutting property owners thereon, as aforesaid, for making such house connections therewith, shall be vested in the party of the second part, but it is understood and agreed that such house connections, as aforesaid, shall be properly made without damage whatsoever to the joint trunk or outlet sewer, and shall not be made without giving two days' notice in writing of the time and place of making such

connections; any damage done in making such connections with the Y-branches of the said joint trunk or outlet sewer shall be borne and paid for by the party of the second part.

"Twelfth—That the street or highway in the City of Elizabeth, known as Bayway, is a public street of said city, and that the party of the second part has full power to grant the use of said street for the construction and maintenance of said joint trunk or outlet sewer therein, as herein provided for.

"Thirteenth—That the parties of the first part shall own the full capacity of said joint trunk or outlet sewer, subject to their agreement with the party of the second part as to the allowance to the party of the second part of 100,000 cubic feet per diem, granted to the party of the second part by virtue of the 'Sixth' clause, and the capacity for surface drainage from and below Woodbridge Avenue to the Sound, granted to the party of the second part by virtue of the 'Seventh' clause of this agreement. That the parties of the first part shall have the right to use or dispose of the said full capacity of said joint trunk or outlet sewer prior to its reaching the City of Elizabeth, subject only to the capacity of 100,000 cubic feet per diem required for the uses of Elizabeth, as herein provided.

"Fourteenth—That the terms 'owned' and 'right either to use and dispose' are understood and defined to include the fullest rights of the parties of the first part to grant, bargain, sell, alien, lease, release, demise and farm-let to any person, persons, firm, firms, body or bodies, corporate or politic, whether situate, being, existing or residing on the line of said sewer, or otherwise, including other municipalities than the parties of the first part, and any municipalities in the Counties of Essex, Union and Morris whatsoever, any part or portion or capacity of said joint trunk or outlet sewer, provided that such grant does not interfere with the said space of 100,000 gallons per diem, for use of the party of the second part, in said joint trunk sewer, granted to the City of Elizabeth by virtue of this agreement.

"Fifteenth—That the said joint trunk or outlet sewer shall be built and during its life be maintained and kept in repair at their own expense by the parties of the first part.

"The foregoing Memorandum embodies all the terms and provisions of the contract agreed by us to be presented to the parties thereto, and recommended by us for adoption, without substantial change or addition thereto.

August 27, 1901. "(Signed.)

"Francis Speir, Jr.,

"Chairman of Executive Committee Joint Body.

"Randolph Woodruff,

"Attorney for the Joint Municipalities.

"Dennis F. Collins,

"Chairman Special Sewer Committee, City of Elizabeth, N. J.

"James C. Connelly,

"Attorney for City of Elizabeth."

Mr. Cox, of Milburn, offered the following resolution:

"Resolved, That the report in writing of the Executive Committee, with the accompanying Memorandum of Proposed Agreement with the City of Elizabeth for its consent to the construction of the sewer through its territorial limits, be received, and the recommendations of the Executive Committee adopted; and be it further

"Resolved, That the Permanent Chairman and the Secretary be directed to execute the contract embodying the provisions of the proposed contracts submitted by the Executive Committee on behalf of the joint meeting, when said contract shall have been duly authorized on behalf of the City of Elizabeth and subject to the approval of the same, as to form, by the Counsel of this joint meeting."

Resolution seconded by Mr. Brewer, of South Orange, and, on vote being taken, was carried, all municipalities present voting aye.

Mr. Cunningham offered the following resolution:

"Resolved, That the Permanent Chairman be authorized and requested to make application to the said Board of Health of the State of New Jersey on behalf of the Joint Meeting for an examination of the proposed outlet of the sewer, and for its approval and consent to the construction of the same, and the discharge of said sewer at said point in accordance with the provisions of the statute under which the Joint Meeting was organized."

On resolution being duly seconded vote was taken and resolution carried, all municipalities present voting aye.

Mr. Tuttle, of Irvington, offered the following resolution:

"Resolved, That the Executive Committee be directed to take charge of and conduct negotiations for the municipal consent of the Township of South Orange, County of Essex, and for the Township of Union, County of Union, for the construction of a sewer through their territorial limits."

Resolution seconded by Mr. Cox, of Milburn, and, on vote being taken, was carried, all municipalities present voting aye.

Mr. Eschenfelder, of Vailsburg, offered the following resolution:

"Resolved, That the Permanent Chairman be authorized and requested to make formal application in writing on behalf of the Joint Meeting to the proper authorities of the Township of South Orange, in the County of Essex, for the consent to the construction of the proposed sewer within and through the territorial limits of the said Township of South Orange."

Resolution seconded by Mr. Speir, of South Orange, and, on vote being taken, was carried, all municipalities present voting aye.

Mr. Buckley, of Summit, offered the following resolution:

"Resolved, That the Permanent Chairman be authorized and requested to make formal application in writing on behalf of the Joint Meeting to the proper authorities of the Township of Union, the County of Union, for consent to the construction of the proposed sewer within and through the territorial limits of the said Township of Union."

On resolution being duly seconded, vote was taken and resolution carried, all municipalities present voting aye."

Mr. Eschenfelder, of Vailsburg, offered the following resolution:

"Resolved, That the thanks of the Joint Meeting be and are hereby tendered to Mr. Francis Speir, Jr.. Mr. Woodruff and to the Committee on Municipal Rights of Way, consisting of Messrs. A. A. Buckley, C. V. Baumann and Thomas Cunningham, for their untiring efforts in reaching an agreement with Elizabeth."

Resolution seconded by Mr. Cox, and, on vote being taken, was carried.

Mr. Glorieux said that inasmuch as the size of the sewer (in the limits of the City of Elizabeth) had been changed to 42 inches, as compared with 36 inches in the original plans, he thought it would be advisable to have this change in size of the sewer passed on by the various municipalities.

Mr. Speir moved that the matter of enlarging the sewer from 36 inches to a size not to exceed 42 inches be referred to Counsel, and that he be directed to give his opinion as to the necessary steps to be taken by the various municipalities and by the Joint Meeting to cover this change in size of the sewer, and further that he submit his opinion before next Tuesday.

Motion being duly seconded, vote was taken and motion carried.

On motion meeting adjourned.

Wm. Rollinson,
Secretary.

Joint Meeting of September 12, 1901.

Joint Meeting held at the meeting rooms in the Century Building, Newark, N. J., Thursday, September 12, 1901, at 8 p. m.

In the absence of Mr. Glorieux, Chairman of the Joint Meeting, the Secretary announced that nominations for a Temporary Chairman were in order.

Mr. Buckley was nominated as Temporary Chairman. On nomination being duly seconded, there being no other nomination, vote was taken and Mr. Buckley was declared unanimously elected as Temporary Chairman.

On roll being called it was found that the following municipalities were represented:

Irvington, South Orange, West Orange and Summit; Mr. Lyon, representing Milburn, arriving a few minutes later.

On motion the reading of the minutes of previous meetings was dispensed with.

Chair called for report of Executive Committee.

Mr. Woodruff read communication from D. H. Beach, Chairman of the Township of Union, fixing September 17, 1901 at 2 o'clock, in the office of W. C. J. English, as the time and place for the conference asked for by the Permanent Chairman of the Joint Meeting in the matter of obtaining the right of way for the joint trunk sewer through the Township of Union.

Mr. Tuttle, of Irvington, moved that the communication be received and placed in the hands of the Chairman of Committee on Municipal Rights of Way. Motion being duly seconded, vote was taken and motion carried.

Mr. Woodruff said that a communication had been received from the Township of South Orange, fixing a date for a conference for the purpose of obtaining the right of way for the joint trunk sewer through the Township of South Orange, but that a communication from Joseph H. Osborne, Clerk of the Township of South Orange, had been recently received, postponing said conference indefinitely.

Secretary read the following communication from Counsel as to the proper procedure to meet the proposed change in the size of the sewer in the City of Elizabeth:

"W. L. Glorieux, Esq., Permanent Chairman:—

"Dear Sir:—In response to the request transmitted to me for an opinion upon the proper procedure to authorize the execution of the proposed contract with the City of Elizabeth, I submit the following:

"Under the second section of Chapter 36 of Laws of 1899, being the statute under which the Joint Meeting is organized, it is provided that the proceedings and official action whatsoever necessary to be taken under the contract or contracts, for such public improvements made by municipalities under this act, shall be taken and had by such Joint Meeting exclusively, except in matters relating to the raising and paying of the money provided to be paid by the contracting municipalities, and in all such matters the contracting municipality shall act in its separate, corporate capacity. Whether it be considered that the proposed contract is made under the fifth or sixth section of the act in question, its execution should be authorized by the Joint Meeting and not by the municipalities separately.

"The seventh section of the act provides that whenever a joint contract shall be made all acts and proceedings which may be necessary to be thereafter taken by the municipalities, collectively, at any Joint Meeting relating to said public improvement, may be taken by resolution and not by ordinance.

"I am therefore clearly of the opinion that the proper procedure in the case in question is by resolution of the Joint Meeting.

"Yours truly,

"Adrian Riker,
"Counsel."

Secretary read the following communication from Counsel in regard to the contract with the Engineer:

"Mr. W. L. Glorieux, Permanent Chairman, Etc.:—

"Dear Sir:—I hand you herewith form of agreement between the Joint Municipalities and Alexander Potter, as same has been revised by Mr. Potter.

"I do not find anything to object to seriously except the provision in the eighth section, with reference to the collection of penalties from contractors for the benefit of Mr. Potter.

"You will find the parts objected to by me stricken out in lead pencil, and I do not now see any reason for permitting them to be inserted in the agreement. This matter was discussed with Mr. Potter at the first meeting held in South Orange, and it was decided not to permit the agreement to contain these provisions. I would suggest that the contract be approved and ordered executed with these provisions stricken out.

"Yours very truly,

"Adrian Riker."

Mr. Franklin, of Summit, moved that the proper officers of the Joint Meeting be authorized to execute the contract as revised by Counsel, and that in the event of Mr. Potter refusing to execute contract as revised, to refer same back to the Executive Committee to make a report at the next regular meeting of the Joint Meeting. Motion seconded by Mr. Cunningham, and, on vote being taken, was unanimously carried.

Secretary announced that on approval of Counsel a warrant had been drawn in the sum of $54.16 to the order of the agents of the Century Building in payment of the rent for August.

Mr. Cunningham moved that the drawing of the warrant and paying of the rent be approved. Motion being duly seconded, vote was taken and motion carried.

Secretary announced that the rent for the month of September in the sum of $54.17 was now due.

Mr. Lyon, of Milburn, moved that the rent for the month of September be paid. Motion being duly seconded, vote was taken and motion carried.

Bill of The Orange Journal Publishing Company, in the sum of $5.20, for printing Minutes of the Joint Meeting, was read.

Motion was made that bill be paid. On motion being duly seconded, vote was taken and motion carried.

On motion meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of October 10, 1901.

Joint Meeting held October 10, 1901, at 8 p. m., in the meeting rooms in the Century Building, Newark, N. J.

On roll being called it was found that all of the municipalities were represented.

Minutes of last meeting, held September 12, 1901, were read, and on motion approved. Secretary stated that there were a number of meetings of which the minutes had not been read.

Mr. McCoy, of South Orange, moved that the unread minutes be approved as printed. Motion being duly seconded, vote was taken, and on motion unanimously carried.

Chair called for report of Executive Committee, which was read as follows:

"The Executive Committee respectfully reports to the Joint Meeting as follows:

"Your Committee has considered the different matters submitted to it and makes the following report: That in the matter of the contract with the Engineer, your Committee instructed the Secretary to return the contract to Mr. Potter and to notify him that the Committee refused to consider the contract with the clause formerly objected to by Counsel inserted, and that he must execute the contract with said clause stricken out before Thursday, October 10, 1901, or with such modification as might be satisfactory to the Counsel of the Joint Meeting, and further that the Committee refer Mr. Potter to Mr. Adrian Riker, Counsel of the Joint Meeting, in this matter. Your Committee reports the receipt of a communication from N. C. J. English, Counsel for the Township of Union, asking what the Joint Meeting was willing to concede for the right of way for the sewer through the Township of Union. And that said communication was referred to Mr. Riker, Counsel of the Joint Meeting, with instructions to deal with the Township in the matter of obtaining the right of way for the Joint Trunk Sewer through the Township of Union. Your Committee recommends that in the matter of procuring the private rights of way, that the maximum sum to be offered property-owners be ————. And further that the agents employed to procure said rights of way be instructed to report their progress, in obtaining the options on said rights of way, to the Secretary of the Joint Meeting.

"Your Committee recommends that in the matter of the amount of rent to be charged Mr. Woodruff for the use of the front room, as an office, that Mr. Woodruff pay to the Joint Meet-

ing for the use of the front room, as an office, his share or proportion of the rent of the rooms leased by the Joint Meeting, from the Agents of the Century Building, and further that Mr. Woodruff should have the exclusive use of said front room.

* * * * * * * * * * *

"All of which is respectfully submitted."

Mr. Cunningham moved that the report be taken up and voted on, section by section. Motion was duly seconded, and, on vote being taken, was carried.

Section in regard to the contract with Engineer was read. Mr. Riker stated that he had the contract with him, properly executed by Mr. Potter. Motion was made that the action of the Executive Committee in reference to the contract with the Engineer be approved. Motion was duly seconded, and, on vote being taken, was carried.

Section in regard to the communication from N. J. C. English taken up. Mr. McCoy moved that the action of the Executive Committee be approved. Motion was duly seconded, and, on vote being taken, was carried.

Section containing recommendation as to the amount to be offered property-owners for private rights of way taken up. Motion was made that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and, on vote being taken, was carried.

Section in regard to the amount of rent to be charged Mr. Woodruff taken up. Mr. Lyon moved that the recommendation of the Executive Committee in regard to the amount of rent to be charged Mr. Woodruff be concurred in. Motion was duly seconded, and, on vote being taken, was carried.

Section recommending that the Executive Committee be authorized to accept options for private rights of way * * * etc., was taken up. Mr. Cunningham moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and, on vote being taken, was carried.

Mr. McCoy, of South Orange, moved that the minutes, in so far as they related to the purchasing of the options for private rights of way, be not printed. Motion was duly seconded, and, on vote being taken, was carried.

Mr. Lyon moved that the agents on private rights of way make

a report of their progress once a week to the Secretary of the Joint Meeting, so that he may tabulate them and be able to report to the Joint Meeting on the progress of the work. Mr. Speir said that he would like to make the following amendment to Mr. Lyon's motion: That the Secretary be instructed to keep charge of the whole question of the private rights of way. Mr. Lyon said he would accept the amendment. On motion being duly seconded, vote was taken and motion, as amended, was carried.

Counsel reported on the matter of obtaining the right of way through the Township of Union; that he had communicated with the municipal officers of Union and that he did not apprehend any serious trouble in obtaining the right of way for the sewer through the township; that they wanted to be guaranteed that the roads would not be all torn up at the same time, and that they would be properly relaid; that they further wanted the right to discharge their sewage together with that of New Orange in the Joint Trunk Sewer.

Question was asked as to the nature of the sewage, and Mr. Riker replied that it was all house sewage.

Mr. Riker further stated that it seemed to him to be only a question of how much capacity the Township of Union would require, and how much the Joint Meeting could allow.

Mr. Lyon moved that Counsel ascertain from the Engineer of the Joint Meeting the amount of sewage required by the Township of Union, and negotiate with the Township of Union to let them in the Joint Trunk Sewer on the same basis as the other municipalities. Motion was duly seconded by Mr. Cunningham, and, on vote being taken, was carried.

Mr. Fox, Mayor of Morristown, asked permission to speak. On permission being granted he spoke of the need of a sewer in Morristown, and asked if they would be allowed to join in the Joint Trunk Sewer. Mr. Glorieux stated that he thought it would be advantageous to have Morristown join, but questioned the legality of such an action on the part of the Joint Meeting, and called on Counsel for his opinion.

Mr. Riker said that as the statute now stands the Joint Meeting has the right to take in any municipality on or along the line of the proposed Joint Trunk Sewer, but as Morristown was not on the line of the sewer it would be necessary to practically

reorganize in order to take Morristown in, and that he would recommend waiting until the Legislature had met and provided for this matter before taking any steps to take Morristown in the Joint Trunk Sewer.

Mr. Lyon moved that the matter be referred to the Executive Committee for investigation. Motion duly seconded, and, on vote being taken, was carried.

Secretary read bill of Wm. E. Gormely & Co., for printing name on door, etc., in the sum of $16.25, and on motion it was ordered paid. Mr. Lyon asked if this bill had been passed by the Executive Committee, and on being told that such was not the case, he moved that the order to pay Mr. Gormely's bill be rescinded and that all the bills be referred to the Executive Committee for approval. Motion was duly seconded, and, on vote being taken, was carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of November 14, 1901.

Joint Meeting held November 14th, 1901, in the meeting rooms in the Century Building, Newark, N. J.

On roll being called it was found that all of the municipalities were represented.

On motion the reading of the minutes of the previous meeting was dispensed with.

Chair called for the report of the Executive Committee.

Mr. Speir read the following report, section by section:

"The Executive Committee respectfully reports as follows:

"Section 1. At the request of the Chief Engineer, Mr. Potter, the Executive Committee advertised for bids for test borings along the line of the proposed sewer, such borings being a prerequisite to obtaining intelligent bids from contractors. Pursuant to such advertisement in the Engineering News of October 31st, and the Newark Evening News the last five days in October, five formal bids were received, which are submitted herewith. We recommend that the lowest bid, that of P. & J. Conlon, of Newark, be accepted."

Mr. Lyon moved that bid of P. & J. Conlon be accepted and the proper officers of the Joint Meeting directed to execute the contract. Motion duly seconded, and on vote being taken motion was carried.

"Section 2. The matter of Morristown's obtaining space in the Joint Trunk Sewer, referred by the joint body to the Executive Committee, has been taken up. Mayor Fox, Mr. Herzog and Mr. Crane, the full Sewerage Committee of the Town of Morristown, were invited to a conference with the Executive Committee They attended, and at that meeting the matter of their participation in the sewerage project was discussed. Sufficient data was not before us to enable action to be had. By vote of this Committee the Chairman was directed to confer further with the Sewerage Committee of Morristown as to Morristown's joining in the project on the same basis as the adjoining municipalities. A conference was thereafter held, pursuant to such direction, figures were examined and the authorities of Morristown expressed a desire to join with us, provided necessary legislative action could be obtained. They requested that a proposition conditioned upon their obtaining favorable legislation be made to them, that could be submitted to their Council, and stated that they would give a formal answer within thirty days. Such letter has been drafted, submitted to and approved by Counsel and the Chief Engineer, and is submitted herewith. At the proper time the matter should also be formally brought before the authorities of Morris Plains."

Mr. Speir then read the proposed formal letter to Morristown.

"It was suggested that the letter should contain the statement that Morristown must agree to pay the increased cost to Milburn and Summit caused by the increased size of the pipe necessitated by Morristown coming into the project."

Mr. Eschenfelder moved that the letter submitted by the Executive Committee, with the changes made as outlined, be sent to Morristown. Motion was duly seconded, and on vote being taken was carried.

"Section 3. Private Rights of Way. The Sub-Committee on Private Rights of Way, pursuant to the authority of the joint body, have employed Mr. Thomas C. Baker to obtain consents from the West Orange line south from Montrose Avenue, at a compensation of three cents a running foot for all consents obtained, and for statutory refusals to consent, they have employed Mr. Patrick McGuire, at a salary of twelve dollars a week from October 22d, 1901. They have employed for the Milburn-Summit Branch Mr. George Eager, at a compensation of three cents a

running foot; they have employed Mr. F. Kissam for the Irvington Division, at a compensation of seventy-five dollars; they have employed Mr. William B. Adams, of Newark, to obtain consents, at twenty-five dollars a week, and have instructed him to commence at the Union Township line and work northwest; they have employed Mr. Ernest Nagel for the Vailsburg work, at a compensation of fifteen dollars.

"To this date two consents have been obtained. The reason why more consents have not been obtained is that it was deemed necessary, owing to objections, to vary slightly the line of the sewer, and it has taken considerable time to have the work done and the necessary contracts prepared."

Mr. McCoy asked why there were different methods of paying the men.

Mr. Speir said that Mr. McGuire was employed as an assistant to Mr. Baker to help him along and to hurry the work through; that Mr. Adams was a real estate man of considerable experience, and for that reason was paid more than Mr. McGuire.

Mr. Lyon moved that the men employed to obtain the options on private rights of way be instructed to set a valuation on the land included in the right of way of the sewer, such valuation to be what they consider a fair price to be offered the property-owners for the right of way for the sewer, and to report same to the Committee on Private Rights of way in two weeks.

Motion duly seconded, and on vote being taken was carried.

"As to the size of the Sewer. The Executive Committee recommends that the size of the proposed Sewer be increased to forty-two inches from Woodbridge Avenue, where it is sixty-six inches, to the junction, and that Counsel be requested to instruct the Joint Body as to necessary resolution to be passed by the Joint Body to carry out such increase, the reason being that by the contract with Elizabeth a forty-inch Sewer is made necessary, and that the increased cost of the forty-two inch Sewer will be outweighed by the increased capacity."

Mr. Eschenfelder moved that the recommendation of the Executive Committee be concurred in. Motion duly seconded, and on vote being taken was carried.

Mr. Riker submitted a proposed contract with the Township of South Orange, setting forth the terms on which the Township of South Orange was willing to give the right of way for the Sewer through the Township.

Mr. Lyon moved that the Chairman and Secretary of the Joint Meeting be authorized to execute the contract on behalf of the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker read a contract he had drawn between the Joint Meeting and the Township of Union for the right of way for the Sewer through the Township of Union, and stated he did not wish any formal action taken on the contract at present.

On being called on Mr. Potter said he would have the plans and specifications of the Sewer along Bayway completed within two weeks and suggested that the Chair call a meeting for Thursday, November 28th, for the purpose of advertising for bids on said specifications.

Mr. Eschenfelder moved that when the meeting adjourned it would adjourn to meet on Tuesday, the 26th day of November, 1901, and that the Committee on Private Rights of Way be instructed to make their report at that meeting. Motion duly seconded, and on vote being taken was carried.

Secretary read recommendation of the Executive Committee "that the different municipalities be called on to pay their requisite share of an assessment of five thousand dollars ($5,000) to the Treasurer of the Joint Meeting, said assessment being on the same basis as the last assessment".

Mr. Eschenfelder moved that the recommendation of the Executive Committee in regard to the assessment of $5,000 be concurred in. Motion duly seconded and carried.

Secretary read recommendation of the Executive Committee "that they be authorized to take the matter of legislative relief up with Counsel".

Mr. Eschenfelder moved that the recommendation of the Executive Committee in regard to legislative relief be concurred in. Motion was duly seconded and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Orange Journal Publishing Company	$ 21.55
Newark Evening News	4.50
Thomas C. Baker	75.00
William E. Gormely & Co.	21.25
Cannon's	83.25

Engineering News Publishing Company	4.80
Special Agents of the Century Building	108.32
William B. Adams	50.00
Alexander Potter	750.00
J. R. Woodruff	11.54

Mr. Lyon moved that the chair appoint an Auditing Committee to consist of three members of the Executive Committee. Motion duly seconded, and on vote being taken was carried.

Chair appointed Messrs. Cunningham, Eschenfelder and Lyon.

On motion meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of November 26, 1901.

Joint Meeting held Tuesday, November 26th, 1901, in the meeting rooms in the Century Building, Newark, N. J.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark and West Orange.

On motion the reading of the Minutes of the previous meeting was dispensed with.

Chair called for report of Executive Committee. The report was read as follows:

"The Executive Committee respectfully reports to the Joint Meeting as follows:

"That in the matter of legislative relief your Committee has directed Counsel to reintroduce the act that failed passage last year owing to a clerical error that crept in, such act to make clear that one representative from each municipality would be sufficient.

"Your Committee further directed Counsel to prepare and have introduced at the earliest possible time, an enabling act, permitting the Joint Meeting to dispose of space in the Sewer to other municipalities not on the line of the Sewer.

"In the Morristown matter your Committee report that they have received a communication to the effect that Morristown will act this week on the letter of the Joint Meeting.

"Your Committee directed the Treasurer to pay the following bill of Ernest Nagel, to-wit: Fifteen dollars, for services rendered in obtaining options on private rights of way in Vailsburg and $15 for money advanced by him on said contracts.

"Your Committee reports that it has carefully investigated the bill of Thomas C. Baker, in the sum of $75, for services rendered on private rights of way during the year 1899, and that they believe the bill to be correct and recommend that it be paid."

The Sub-Committee on Private Rights of Way report as follows:

"They have tabulated as far as possible the private ownerships of land through which the Joint Sewer is planned to run, viz.: Union Township, Milburn, South Orange, Irvington and Vailsburg ownerships and submit a statement giving approximately the number of lineal feet, the assessed valuation, reasonable valuation and remarks on each separate parcel.

"It has become apparent to the Committee that considerable delay will be caused by the refusal of many owners to consent to the Sewer, and that considerable time must elapse before the necessary statutory refusal to agree can be properly established and condemnation proceedings commenced. Your Committee have consulted Mr. Adrian Riker, as Counsel, with regard to obtaining legislative relief, and have been advised that inasmuch as the Joint Sewer is a public work the Legislature can authorize the taking of private land before condemnation proceedings are taken, and that the price of the land or the right of way can be fixed by a commission after the land or right of way has been taken.

"Your Committee, after thorough investigation, are of the opinion that many owners of the land through which the Sewer is to run are holding back their consents for the purpose of making us pay extravagantly to avoid further delay.

"We would recommend that Counsel be instructed to draft an act enabling us to enter into the property and construct and maintain the Sewer thereon and to provide a proper method of ascertaining the damage done to the property so taken and paying the owners therefor.

"Respectfully submitted. November 26, 1901."

It was duly moved that Counsel be directed to draw an act permitting the Joint Meeting to enter into the property and construct and maintain the Sewer thereon and to provide a proper method of ascertaining the damage done to property so taken and paying the owners therefor. Motion duly seconded, and on vote being taken was carried.

Mr. Speir read the statement giving the number of feet, the assessed valuation, reasonable valuation and remarks on each separate parcel through which the Sewer passes.

It was duly moved and seconded that the report of the Execu-

tive Committee recommending the payment to ..... respectively, the following sums of money ..... ,for the right of way for the Trunk Sewer through their property, be approved, and that the Executive Committee and its Sub-Committee on Private Rights of Way be authorized to offer to the said persons said sums of money for said right of way, and in case of their refusal to accept the same, to direct Counsel to begin proceedings to condemn the right of way through said properties. On vote being taken motion was carried.

On being called on Mr. Potter read the specifications of the Sewer from Staten Island Sound to Morris Avenue.

Mr. Lyon moved that the Chair appoint a Committee of Three to look over specifications. Motion duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that when the meeting adjourned it would adjourn to meet on Thursday, December 5th, 1901.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of December 5, 1901.

Joint Meeting held December 5, 1901, in the meeting rooms in the Century Building, Newark, N. J.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark and Summit.

On motion the reading of the Minutes of the previous meeting was dispensed with.

Mr. Speir read the following report of the Committee on Specifications:

"The Committee composed of Mr. Baumann, Mr. Cunningham and Mr. Speir, appointed by the Joint Body to examine the specifications, etc., prepared by the Chief Engineer for the First, or Bayway, Section of the Trunk Sewer, report as follows:

"They have spent considerable time in examining plans, specifications, contracts and notices, and have gone over them thoroughly with Mr. Riker and Mr. Potter. Through the good offices of Mr. Baumann they have also had the advantage of the experience and criticism of Mr. Adam, the Sewerage Engineer of

the Board of Works, and Chief Engineer of Newark, who devoted a whole evening to this work.

"The Committee, with Mr. Riker and Mr. Potter, took up the clauses of the contract seriatim, and Mr. Riker has suggested certain changes both as to form and substance, and now approves of the contract, notice and form of advertisement.

"We submit herewith plans, specifications, proposed contract, notice to bidders and form of advertisement, all of which are approved as to form by Mr. Riker, and we hereby recommend their adoption by the Joint Body, as submitted. Respectfully submitted,

"Francis Speir, Jr.,
"Chairman.

"Dated December 5, 1901."

Mr. Eschenfelder moved that the report be approved. Motion duly seconded, and on vote being taken was carried.

The report of the Executive Committee was read as follows:

"The report of the Committee on Specifications has been read and approved by the Executive Committee, and they recommend its adoption by the Joint Body. The Committee have received a communication from the Hon. Patrick Farrelly, President of the Board of Managers of the State Hospital for the Insane, acknowledging receipt of letter as to participation by the State Hospital in the Joint Trunk Sewer, stating that the matter would be referred to the Board of Managers at their next meeting.

"They have also received a letter, dated November 30, from Mr. Hurtzog, Chairman of the Committee on Sewerage of the Town of Morristown, stating that owing to an unforeseen delay in checking off Mr. Potter's estimate of cost, it will be impossible to give a reply to our letter of November 18, as quickly as was at first supposed, and stating they might require an additional two weeks.

"The Committee would suggest the advisability of the appointment of a Committee on Legislation to organize and see that the necessary remedial legislation is passed with all possible speed.

"Mr. Riker, as Counsel, has drawn the necessary resolution to be passed by the Joint Body, increasing the size of the sewer to correspond with the requirements of the contract with Elizabeth. Mr. Riker, as Counsel, has also drawn the necessary resolution to be passed by the Joint Body approving the plans and specifications for the First, or Bayway, Section of the Joint Sewer, directing the plans to be filed and authorizing the advertisement for bids under the provisions of the statute.

"Respectfully submitted.

"Dated December 5, 1901."

Mr. Cunningham moved that the Chair appoint a Committee on Legislation, to be composed of three members, including the Chairman of the Joint Meeting.

Motion was duly seconded, and on vote being taken was carried.

The following resolution, drawn by Counsel, was read:

"Whereas, By the ordinance and contract of the several municipalities represented in the Joint Meeting, the general route, size and capacity are designated pursuant to the direction of the statute; and

"Whereas, For the purpose of carrying into effect the contract heretofore made with the City of Elizabeth for the right to construct the outlet sewer through its territory, it has become necessary to adopt a more specific description of the size of various sections of the outlet sewer; be it

"Resolved, That the outlet sewer on Bayway from tide-water, a distance of twenty-six hundred and sixty-five feet, more or less, to Princeton Avenue in the City of Elizabeth, is hereby designated and fixed at seventy-two inches in diameter or its equivalent area. From said Princeton Avenue for a distance of seven hundred and seventy-three feet, more or less, to Woodbridge Avenue, at sixty-six inches in diameter, or its equivalent area; and from that point a distance of fifteen thousand, one hundred and eighty-four feet to a point in Bayway about one thousand one hundred feet east of Morris Avenue, forty-two inches in diameter, or its equivalent area."

Mr. Speir moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved the adoption of the following resolution:

"Whereas, The Engineer of the Joint Meeting has presented plans and specifications for the construction of the Outlet or Trunk Sewer from tide-water through the City of Elizabeth of the dimensions heretofore determined by this body.

"Resolved, That said particular plans and specifications presented by the Engineer be forthwith filed in the Office of this Joint Meeting; that Thursday, the sixteenth day of January, nineteen hundred and two, from eight-thirty to eight-forty-five o'clock in the evening, be hereby designated as the time for a meeting of this Joint Body, at its usual place of meeting, to receive proposals in writing for doing the work, furnishing the materials for the construction of the aforesaid section of the Trunk Sewer, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement, inserted in one or more newspapers published or circulating in the munici-

palities jointly contracting at least two weeks before the time herein designated, of the work to be done and materials to be furnished under said specifications, one of which newspapers shall be the Newark Evening News, published in the City of Newark, New Jersey; that such advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that any and all proposals will be subject to rejection by the Joint Meeting in accordance with the direction of the statute."

Motion duly seconded, and on vote being taken was carried.

It was moved and seconded that the advertisement be published once a week in the following papers: The Engineering News, The Engineering Record, The Newark Evening News, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, and on vote being taken motion was carried.

Mr. Cunningham moved that hereafter no bills shall be considered by the Joint Meeting that are not accompanied by an affidavit. Motion was duly seconded, and on vote being taken was carried.

The following recommendation of the Executive Committee was read:

"That the Secretary be directed to have printed, in book form, as advised by Engineer, one hundred and fifty copies of Contract and Specifications, Instructions to Bidders, of Section No. I of Joint Outlet Sewer."

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that the Secretary get bids from different publishers on the printing of said contracts and specifications, etc., and award it to the lowest bidder. Motion duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Alexander Potter	$750.00
Patrick J. McGuire	79.65
William B. Adams	55.95
S. Leschzener & Co.	54.16
Henry Keenan & Son	11.00

Mr. Tuttle moved that the Legislative Committee be instructed to order copies of all legislative bills to be kept on file in the Office of the Joint Meeting.

Motion duly seconded, and on vote being taken was carried.

Communication from E. T. Lukens, of the Delaware, Lackawanna and Western Railroad, asking what the Joint Meeting was willing to give for the right of way of the Sewer on the Peapack and Passaic Valley Railroad Company right of way, was read.

Mr. Speir moved that Mr. Riker be authorized to offer the Delaware, Lackawanna and Western Railroad Company not more than ten cents a running foot for said right of way, provided their title to the same was clear.

Motion duly seconded, and on vote being taken was carried.

Chair appointed Messrs. Eschenfelder and Cunningham to serve with him on the Legislative Committee.

Mr. Speir moved that the Executive Committee and its Sub-Committee on Private Rights of Way be authorized to offer .... respectively, for the right of way for the Trunk Sewer through their properties, and in case of their refusal to accept the same, to direct Counsel to begin proceedings to condemn the right of way through said properties.

Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of December 12, 1901.

Joint Meeting held December 12, 1901, in the meeting rooms in the Century Building, N. J.

On roll being called it was found that there was not a majority of the municipalities represented and meeting was adjourned for one month, to meet at the meeting rooms in the Century Building, Newark, N. J., at 8 p. m.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of January 9, 1902.

Joint Meeting held January 9th, 1902, in the meeting rooms in the Century Building.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark.

On motion the reading of the minutes of the previous meetings was dispensed with. Mr. Speir read the following report:

"The Committee appointed at the meeting of the Executive Committee on January 2, 1902, to prepare suitable resolutions in regard to Mr. Thomas Cunningham, respectfully report the following statement, preamble and resolutions for consideration and action by the Joint Meeting.

"Francis Speir, Jr.,
"Andrew Eschenfelder,
"Charles O. Lyon,
"Committee.

"*Statement, Preamble and Resolutions.*

"Thomas Cunningham died on the 26th day of December, 1901, in West Orange, where his life for over twenty years had been largely spent. A member of the Town Council of West Orange, he acted as Chairman of its Committee on Sewerage and represented his town on the Executive Committee of the Joint Municipalities for the construction and maintenance of a Joint Trunk Sewer.

"A man of force and determination, yet of remarkable simplicity of character, he was influenced in his actions and utterances by a high ideal of public responsibility. With him there was never any compromise with wrong permitted. As a member of the Executive Committee of the Joint Body he spared neither time nor personal inclination in advancing the public interests.

"Now, Whereas, The Mayor and Common Council of the City of Newark, the City of Summit, the Village of South Orange, the Town of West Orange, the Township of Milburn in the County of Essex, the Town of Irvington, the Mayor and Common Council of the Borough of Vailsburg, in joint meeting organized as the Joint Body for the construction and maintenance of a Trunk Sewer, are desirous of expressing their respect for the life and character of their late member, Thomas Cunningham, and attesting their sorrow at his death;

"Be it Resolved, That the Joint Body record in the Minutes of their procedure this statement, preamble and resolution as the expression of their feelings, and that a proper copy thereof be forwarded to Mrs. Cunningham as an expression of sorrow and sympathy in her loss and that of the family."

Mr. Tuttle moved that the resolution be adopted and a copy sent to Mrs. Cunningham. Motion duly seconded, and on vote being taken was carried.

Secretary read report of Committee on Private Rights of Way—on property on the Central Division, Second and Third Divisions, West Branch, and the Milburn and the Summit Division of the Joint Outlet Sewer and recommending the amounts to be offered for the purchase of the right of way through each piece of property and in three instances on the South Orange Division recommending the purchase of a strip of land.

Mr. Riker said that the resolutions that had been passed by the Joint Meeting authorizing the Executive Committee to offer certain sums of money for the right of way through private properties, with a view to obtaining statutory refusals, were not sufficient, and that he would advise that no action be taken on the recommendations of the Committee on Private Rights of Way until the next monthly meeting, when he would have the necessary resolution prepared.

Mr. Lyon moved that the report of the Committee on Private Rights of Way be referred back to that Committee with instructions to make a report in the form of a resolution for the taking of land, specifying the amount to be offered for each piece of property and to present same at the next monthly meeting.

Motion duly seconded and on vote being taken was carried.

Counsel read proposed Acts which he had drawn according to the instructions of the Joint Meeting.

Motion was made that the Acts as drawn by Counsel be approved and that the Legislative Committee be directed to introduce them at the earliest possible time. Motion was duly seconded and on vote being taken was carried.

Mr. Speir moved that the Chair be directed to fill the vacancy on the Legislative Committee and on the Auditing Committee. Motion was duly seconded, and on vote being taken was carried. Chair appointed Mr. Lyon to serve on the Legislative Committee and Mr. Glazier to serve on the Auditing Committee.

On motion the Secretary was directed to spread on the Minutes that Mr. George C. Hand had been elected by the Common Council of Summit and Edward Glazier elected by the Town

Council of West Orange to serve on the Executive Committee of the Joint Meeting.

The Secretary stated that the Executive Committee had ordered paid a bill of William B. Adams in the sum of $60.80 for two weeks' salary on private rights of way and traveling expenses.

Mr. Speir moved that the action of the Executive Committee be approved, ratified and confirmed. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Patrick McGuire	$64.80
William B. Adams	92.35
Grover Brothers	51.70
S. Leschziner & Co.	54.16
New York and New Jersey Telephone Company	11.55

Mr. Lyon moved that the estate of Thomas Cunningham be paid $161.66 for salary as member of the Executive Committee up to December 27, 1901, and that Mr. Buckley be paid $165.00 for salary up to January 1st, 1902; and further, that salaries of all the members of the Executive Committee be paid up to January 13, 1902. Motion duly seconded, and on vote being taken was carried.

There being no further business, on motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Special Joint Meeting of January 16, 1902.

Special Joint Meeting held Thursday, January 16th, for the purpose of receiving proposals in writing for doing the work, furnishing the materials for the construction of Section 1 of the Joint Trunk Sewer.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark. On motion the reading of the minutes of the previous meeting was dispensed with.

The Secretary read the following call for the Special Meeting, as passed by the Joint Meeting, December 5th, 1901:

"Resolved, That said particular plans and specifications presented by the Engineer be forthwith filed in the Office of this Joint Meeting; that Thursday, the sixteenth day of January, nineteen hundred and two, from eight-thirty to eight-forty-five o'clock in the evening, be hereby designated as the time for a meeting of this Joint Body, at its usual place of meeting, to receive proposals in writing for doing the work, furnishing the materials for the construction of the aforesaid section of the Trunk Sewer, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement, inserted in one or more newspapers published or circulating in the municipalities jointly, contracting at least two weeks before the time herein designated, of the work to be done and materials to be furnished under said specifications, one of which newspapers shall be the Newark Evening News, published in the City of Newark, New Jersey; that such advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that any and all proposals will be subject to rejection by the Joint Meeting in accordance with the direction of the statute."

At 8:30 p. m. Chair announced that bids would be received up to 8:45 p. m. Bids were received from the following contractors: Metropolitan Construction Company, Thomas F. Moore, T. J. Shea, Bernard J. Sullivan and the Harrison Construction Company. At 8:45, Mr. Glorieux, Chairman of the Joint Meeting, opened the bids and read them as follows:

Proposal.

To the Joint Meeting comprising the following municipalities: The City of Newark, Town of Irvington, Village of South

Orange, Town of West Orange, City of Summit, Township of Milburn, and Borough of Vailsburg.

Gentlemen: The undersigned contractor doing business under the firm name of Thomas F. Moore agrees to perform the following work in accordance with the plans and specifications prepared by Alexander Potter, Consulting Engineer, to-wit:

195 feet, 72 inch brick sewer, 3 ring, under 6 feet, $9.43 per foot	$ 1,838.85
1,970 feet, 72 inch brick sewer, 3 ring, 6 feet to 10 feet, $9.89 per foot	19,483.30
500 feet, 72 inch brick sewer, 3 ring, 10 feet to 14 feet, $10.71 per foot	5,355.00
773 feet, 66 inch brick sewer, 3 ring, 6 feet to 10 feet, $9.28 per foot	7,173.44
474 feet, 42 inch brick sewer, 2 ring, under 6 feet, $4.32 per foot	2,047.68
7,725 feet, 42 inch brick sewer, 2 ring, 6 feet to 10 feet, $4.46 per foot	34,453.50
4,225 feet, 42 inch brick sewer, 2 ring, 10 feet to 14 feet, $5.08 per foot	21,463.00
1,270 feet, 42 inch brick sewer, 2 ring, 14 feet to 18 feet, $6.02 per foot	7,645.40
890 feet, 42 inch brick sewer, 2 ring, 18 feet to 22 feet, $7.08 per foot	6,301.20
600 feet, 42 inch brick sewer, 2 ring, 22 feet to 26 feet, $8.60 per foot	5,160.00
48 manholes, 10 feet deep and less, $36.33 each	1,743.84
47 feet of manholes, 10 feet to 15 feet deep, $4.44 per foot	208.68
15 feet of manholes, 15 feet to 20 feet deep, $4.67 per foot	70.05
5 feet of manholes, 20 feet to 26 feet deep, $5.00 per foot	25.00
9,000 cubic yards of rock, $1.75 per yard	15,750.00
2,015 lineal feet, piling in wharf and bulkhead, 33 cents per foot	664.95
23,750 feet, B. M. lumber in wharf and bulkhead, $46.67 per M.	1,108.41
7,000 feet, B. M. timber foundation, $53.34 per M.	373.38
30,000 feet, B. M. sheeting, $26.00 per M.	780.00
36 feet, 36 inch cast iron pipe, $10.80 per foot	388.80
650 square yards asphaltum lining, per yard, 67 cents	435.50
50 cubic yards extra brick work, $11.00 per yard	550.00
50 cubic yards, extra concrete, $9.00 per yard	450.00
Total	$133,469.98

Alternate Proposal.

195	7 feet by 4 feet, concrete steel, under 6 feet, $12.56 per foot	$ 2,449.20
1,970	7 feet by 4 feet, concrete steel, 6 feet to 10 feet, $12.96 per foot	25,531.20
500	7 feet by 4 feet, concrete steel, 10 feet to 14 feet, $13.46 per foot	6,730.00
773	6 feet by 4 feet, concrete steel, 6 feet to 10 feet, $12.81 per foot	9,902.13

If a 3 foot 0 inch by 4 foot 6 inch brick section is used in place of the 42 inch brick sewer, deduct 6 cents per foot from my bid.

For web tile in place of 42 inch sewer add 29 cents per foot to my bid.

Attached hereto please find a certified check for $5,000.00 (five thousand dollars), made payable to Francis S. Phraner, Treasurer of Joint Meeting, without conditions.

THOMAS F. MOORE,
103 N. Beach Street,
Syracuse, N. Y.

Dated, January 16, 1902.

Proposal.

To the Joint Meeting comprising the following municipalities: The City of Newark, Town of Irvington, Village of South Orange, Town of West Orange, City of Summit, Township of Milburn, and Borough of Vailsburg.

Gentlemen: The undersigned contractor doing business under the firm name of Metropolitan Construction Company agrees to perform the following work in accordance with the plans and specifications prepared by Alexander Potter, Consulting Engineer, to-wit:

195	feet, 72 inch brick sewer, 3 ring, under 6 feet, $8.57 per foot	$ 1,671.15
1,970	feet 72 inch brick sewer, 3 ring, 6 feet to 10 feet, $8.57 per foot	16,882.90
500	feet, 72 inch brick sewer, 3 ring, 10 feet to 14 feet, $8.57 per foot	4,285.00
773	feet, 66 inch brick sewer, 3 ring, 6 feet to 10 feet, $8.05 per foot	6,222.65
474	feet, 42 inch brick sewer, 2 ring, under 6 feet,	

$5.00 per foot	2,370.00
7,725 feet, 42 inch brick sewer, 2 ring, 6 feet to 10 feet, $5.00 per foot	38,625.00
4,225 feet, 42 inch brick sewer, 2 ring, 10 feet to 14 feet, $5.00 per foot	21,125.00
1,270 feet, 42 inch brick sewer, 2 ring, 14 feet to 18 feet, $5.00 per foot	6,350.00
890 feet, 42 inch brick sewer, 2 ring, 18 feet to 22 feet, $5.00 per foot	4,450.00
600 feet, 42 inch brick sewer, 2 ring, 22 feet to 26 feet, $5.00 per foot	3,000.00
48 manholes, 10 feet deep and less, $3.50 per foot	1,680.00
47 feet of manholes, 10 feet to 15 feet deep, $3.50 per foot	164.50
15 feet of manholes, 15 feet to 20 feet deep, $3.75 per foot	56.25
5 feet of manholes, 20 feet to 26 feet deep, $4.00 per foot	20.00
9,000 cubic yards of rock, $3.00 per yard	27,000.00
2,015 lineal feet, piling in wharf and bulkhead, 30 cents per foot	604.50
23,750 feet, B. M. lumber in wharf and bulkhead, $50.00 per M.	1,187.50
7,000 feet, B. M. timber foundation, $40.00 per M.	280.00
30,000 feet, B. M. sheeting, $30.00 per M.	900.00
36 feet, 36 inch cast iron pipe, $8.00 per foot	288.00
650 square yards asphaltum lining, per yard, $1.00	650.00
50 cubic yards extra brick work, $9.00 per yard	450.00
50 cubic yards, extra concrete, $9.00 per yard	450.00
Total	$138,712.45

Alternate Proposal.

195	7 feet by 4 feet, concrete steel, under 6 feet $.... per foot	$
1,970	7 feet by 4 feet, concrete steel, 6 feet to 10 feet, $.... per foot	.....
500	7 feet by 4 feet, concrete steel, 10 feet to 14 feet, $.... per foot	
773	6 feet by 4 feet, concrete steel, 6 feet to 10 feet, $.... per foot	

If a 3 foot 0 inch by 4 foot 6 inch brick section is used in place of the 42 inch brick sewer, ———— $.... per foot from my bid.

Same price as 42 inch sewer.

Attached hereto please find a certified check for $5,000.00

(five thousand dollars), made payable to Francis S. Phraner, Treasurer of Joint Meeting, without conditions.

METROPOLITAN CONSTRUCTION CO.,
(By Ralph D. Earl, President),
1 Exchange Place,
Jersey City, N. J.

Attest: HAW. C. GRIFFITHS, Secretary.
Dated, January 16, 1902.

Proposal.

To the Joint Meeting comprising the following municipalities: The City of Newark, Town of Irvington, Village of South Orange, Town of West Orange, City of Summit, Township of Milburn, and Borough of Vailsburg.

Gentlemen: The undersigned contractor doing business under the firm name of T. F. Shea agrees to perform the following work in accordance with the plans and specifications prepared by Alexander Potter, Consulting Engineer, to-wit:

195 feet, 72 inch brick sewer, 3 ring, under 6 feet, $9.00 per foot	$ 1,755.00
1,970 feet, 72 inch brick sewer, 3 ring, 6 feet to 10 feet, $10.00 per foot	19,700.00
500 feet, 72 inch brick sewer, 3 ring, 10 feet to 14 feet, $11.00 per foot	5,500.00
773 feet, 66 inch brick sewer, 3 ring, 6 feet to 10 feet, $9.00 per foot	6,957.00
474 feet, 42 inch brick sewer, 2 ring, under 6 feet, $3.60 per foot	1,706.40
7,725 feet, 42 inch brick sewer, 2 ring, 6 feet to 10 feet, $4.20 per foot	32,445.00
4,225 feet, 42 inch brick sewer, 2 ring, 10 feet to 14 feet, $4.85 per foot	20,491.25
1,270 feet, 42 inch brick sewer, 2 ring, 14 feet to 18 feet, $5.40 per foot	6,858.00
890 feet, 42 inch brick sewer, 2 ring, 18 feet to 22 feet, $6.20 per foot	5,518.00
600 feet, 42 inch brick sewer, 2 ring, 22 feet to 26 feet, $7.50 per foot	4,500.00
48 manholes, 10 feet deep and less, $40.00 each	1,920.00
47 feet of manholes, 10 feet to 15 feet deep, $5.00 per foot	235.00
15 feet of manholes, 15 feet to 20 feet deep, $6.00 per foot	90.00

5 feet of manholes, 20 feet to 26 feet deep, $10.00 per foot	50.00
9,000 cubic yards of rock, $1.50 per yard	13,500.00
2,015 lineal feet, piling in wharf and bulkhead, 20 cents per foot	403.00
23,750 feet, B. M. lumber in wharf and bulkhead, $40.00 per M.	950.00
7,000 feet, B. M. timber foundation, $50.00 per M.	350.00
30,000 feet, B. M. sheeting, $35.00 per M.	1,050.00
36 feet, 36 inch cast iron pipe, $10.00 per foot	360.00
650 square yards asphaltum lining, $1.25 per yard	812.50
50 cubic yards extra brick work, $12.00 per yard	600.00
50 cubic yards, extra concrete, $12.00 per yard	600.00
Total	$126,351.15

Alternate Proposals.

195 7 feet by 4 feet, concrete steel, under 6 feet, $14.50 per foot	
1,970 7 feet by 4 feet, concrete steel, 6 feet to 10 feet, $15.50 per foot	
500 7 feet by 4 feet, concrete steel, 10 feet by 14 feet, $16.50 per foot	
773 6 feet by 4 feet, concrete steel, 6 feet to 10 feet, $14.50 per foot	

If a 3 foot 0 inch by 4 foot 6 inch brick section is used in place of the 42 inch brick sewer, add 25 cents per foot to my bid.

Attached hereto please find a certified check for $5,000.00 (five thousand dollars), made payable to Francis S. Phraner, Treasurer of Joint Meeting, without conditions.

T. J. Shea,
(Per R. B. Muir),
Quincy, Ill.

Dated, January 16, 1902.

Proposal.

To the Joint Meeting comprising the following municipalities: The City of Newark, Town of Irvington, Village of South Orange, Town of West Orange, City of Summit, Township of Milburn, and Borough of Vailsburg.

Gentlemen: The undersigned contractor doing business under the name of Bernard J. Sullivan, agrees to perform the following work in accordance with the plans and specifications prepared by Alexander Potter, Consulting Engineer, to-wit:

195 feet, 72 inch brick sewer, 3 ring, under 6 feet, $18.89 per foot	$ 3,683.55
1,970 feet, 72 inch brick sewer, 3 ring, 6 feet to 10 feet, $12.23 per foot	24,093.10
500 feet, 72 inch brick sewer, 3 ring, 10 feet to 14 feet, $12.82 per foot	6,410.00
773 feet, 66 inch brick sewer, 3 ring, 6 feet to 10 feet, $10.22 per foot	7,900.06
474 feet, 42 inch brick sewer, 2 ring, under 6 feet, $4.67 per foot	2,213.58
7,725 feet, 42 inch brick sewer, 2 ring, 6 feet to 10 feet, $4.98 per foot	38,470.50
4,225 feet, 42 inch brick sewer, 2 ring, 10 feet to 14 feet, $5.46 per foot	23,068.50
1,270 feet, 42 inch brick sewer, 2 ring, 14 feet to 18 feet, $5.94 per foot	7,543.80
890 feet, 42 inch brick sewer, 2 ring, 18 feet to 22 feet, $6.90 per foot	6,141.00
600 feet, 42 inch brick sewer, 2 ring, 22 feet to 26 feet, $7.38 per foot	4,428.00
48 manholes, 10 feet deep and less, $40 per manhole	1,920.00
47 feet of manholes, 10 feet to 15 feet deep, $3.50 per foot	164.50
15 feet of manholes, 15 feet to 20 feet deep, $4.00 per foot	60.00
5 feet of manholes, 20 feet to 26 feet deep, $4.50 per foot	22.50
9,000 cubic yards of rock, $1.60 per yard	14,400.00
2,015 lineal feet, piling under sewer in wharf and bulkhead, 38 cents per foot	765.70
23,750 feet, B. M. lumber in wharf and bulkhead, $48.00 per M.	1,140.00
7,000 feet, B. M. timber, foundation, $40.00 per M.	280.00
30,000 feet, B. M. sheeting, $30.00 per M.	900.00
36 feet, 36 inch cast iron pipe, $15.00 per foot	540.00
650 square yards asphaltum lining, per yard, 50 cents	325.00
50 cubic yards extra brick work, $12.00 per yard	600.00
50 cubic yards, extra concrete, $8.00 per yard	400.00
Total	$145,469.79

Alternate Proposal.

195 7 feet by 4 feet, concrete steel, under 6 feet, $25.00 per foot	$ 4,875.00
1,970 7 feet by 4 feet, concrete steel, 6 feet to 10 feet, $18.00 per foot	35,460.00
500 7 feet by 4 feet, concrete steel, 10 feet to 14	

feet, $19.00 per foot	9,500.00
773 6 feet by 4 feet, concrete steel, 6 feet to 10 feet, $16.00 per foot	12,368.00

If a 3 foot 0 inch by 4 foot 6 inch brick section is used in place of the 42 inch brick sewer, add $1.00 per foot to my bid.

If a 3 foot 0 inch by 4 feet 6 inch web tile section be used in place of 42 inch circular brick section, add $2.00 per lineal foot to my bid.

Attached hereto please find a certified check for $5,000.00 (five thousand dollars), made payable to Francis S. Phraner, Treasurer of Joint Meeting, without conditions.

Bernard J. Sullivan,
19 West Park Street,
Newark, N. J.

Dated, January 16, 1902.

Proposal.

To the Joint Meeting comprising the following municipalities: The City of Newark, Town of Irvington, Village of South Orange, Town of West Orange, City of Summit, Township of Milburn, and Borough of Vailsburg.

Gentlemen: The undersigned contractor doing business under the firm name of The Harrison Construction Co. agrees to perform the following work in accordance with the plans and specifications prepared by Alexander Potter, Consulting Engineer, to-wit:

195 feet, 72 inch brick sewer, 3 ring, under 6 feet $11.10 per foot	$ 2,164.50
1,970 feet, 72 inch brick sewer, 3 ring, 6 feet to 10 feet, $12.10 per foot	23,837.00
500 feet, 72 inch brick sewer, 3 ring, 10 feet to 14 feet, $13.00 per foot	6,500.00
773 feet, 66 inch brick sewer, 3 ring, 6 feet to 10 feet, $11.15 per foot	8,618.95
474 feet, 42 inch brick sewer, 2 ring, under 6 feet, $4.85 per foot	2,298.90
7,725 feet, 42 inch brick sewer, 2 ring, 6 feet to 10 feet, $5.10 per foot	39,397.50
4,225 feet, 42 inch brick sewer, 2 ring, 10 feet to 14 feet, $5.70 per foot	24,082.50

1,270 feet, 42 inch brick sewer, 2 ring, 14 feet to 18 feet, $6.75 per foot	8,572.50
890 feet, 42 inch brick sewer, 2 ring, 18 feet to 22 feet, $8.60 per foot	7,654.00
600 feet, 42 inch brick sewer, 2 ring, 22 feet to 26 feet, $10.10 per foot	6,060.00
48 manholes, 10 feet deep and less, $30.00 per manhole	1,440.00
47 feet of manholes, 10 feet to 15 feet deep, $3.50 per foot	164.50
15 feet of manholes, 15 feet to 20 feet deep, $4.00 per foot	60.00
5 feet of manholes, 20 feet to 26 feet deep, $5.00 per foot	25.00
9,000 cubic yards of rock, $2.20 per yard	19,800.00
2,015 lineal feet, piling in wharf and bulkhead, 25 cents per foot	503.75
23,750 feet, B. M. lumber in wharf and bulkhead, $45.00 per M.	1,068.75
7,000 feet, B. M. timber foundation, $40.00 per M.	280.00
30,000 feet, B. M. sheeting, $35.00 per M.	1,050.00
36 feet, 36 inch cast iron pipe, $10.00 per foot	360.00
650 square yards asphaltum lining, per yard, 50 cents	325.00
50 cubic yards, extra brick work, $12.00 per yard	600.00
50 cubic yards, extra concrete, $7.00 per yard	350.00
Total	$155,212.85

Alternate Proposal.

195 7 feet by 4 feet, concrete steel, under 6 feet $11.75 per foot	$ 2,291.25
1,970 7 feet by 4 feet, concrete steel, 6 feet to 10 feet, $12.75 per foot	25,117.50
500 7 feet by 4 feet, concrete steel, 10 feet to 14 feet, $13.70 per foot	6,850.00
773 6 feet by 4 feet, concrete steel, 6 feet to 10 feet, $11.75 per foot	9,082.75
Total	$ 43,341.50

If a 3 foot 0 inch by 4 foot 6 inch brick section is used in place of the 42 inch brick sewer, add or deduct nothing per foot from my bid.

Attached hereto please find a certified check for $5,000.00 (five thousand dollars), made payable to Francis S. Phraner,

Treasurer of Joint Meeting, without conditions.

THE HARRISON CONSTRUCTION CO.,
(H. L. Harrison, President),
745 Broad Street,
Dated, January 16, 1902. Newark, N. J.

Mr. Speir moved that all the bids be referred to the Committee on Specifications and an additional member to be appointed, to tabulate, state and report on the bids, including the ability and responsibility of the bidders and their bondsmen, and that the Engineer assist the Committee, and that the report be made by the Committee at the next Joint Meeting. Motion was duly seconded and on vote being taken was carried. Chair appointed Mr. Tuttle to serve on the Committee on Specifications.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of February 13, 1902.

Joint Meeting held February 13th, 1902.

On roll being called it was found that all of the municipalities were represented.

Mr. Speir moved that the minutes of the previous meetings be approved as printed. Motion was duly seconded, and on vote being taken was carried.

The report of the Executive Committe was read as follows:

"The Committee on Specifications have laid before the Executive Committee their proposed recommendation as to awarding the contract, together with the documents relating to the qualifications of the lowest bidder, Mr. T. J. Shea. The recommendation of the Committee on Specifications meets with the approval of the Executive Committee, who hereby recommend the same for action by the Joint Body.

"The Committee on Private Rights of Way have laid before the Executive Committee the results of their action under resolution as to the taking of land for the building of the proposed Joint Trunk Sewer and their recommendation to the Joint Body of compensation to be paid to the various owners. The proposed resolution of the Committee on Private Rights of Way is ap-

proved by the Executive Committee and they recommend its passage by the Joint Body.

"All of which is respectfully submitted.

"Dated, February 13, 1902."

On motion the report was received and placed on file.

The report of the Committee on Specifications was read as follows:

"The Committee on Specifications, to whom all bids for the first section of the Joint Trunk Sewer were referred to tabulate, state and report on the bids, including the ability and responsibility of the bidders and their bondsmen, respectfully report as follows:

"That the Committee have been aided by Alexander Potter, the Engineer, as directed by the Joint Body.

"That the following bids have been received:

Lowest Bid.—T. J. Shea, of Quincy, Illinois	$126,351.15
Next Bid.—Thomas T. Moore, 103 North Beach Street, Syracuse, N. Y.	133,469.98
Next Bid.—Metropolitan Construction Co., by Ralph D. Earle, President, 1 Exchange Place, Jersey City, N. J.	138,712.45
Next Bid.—Bernard J. Sullivan, 19 West Park Street, Newark, N. J.	145,469.79
Next Bid.—Harrison Construction Co., by H. L. Harrison, President, 745 Broad Street, Newark, N. J.	155,212.85

"That the Committee gave the matter careful consideration and were unanimously of the opinion that the bid of T. J. Shea should be accepted, provided that on investigation his character, reputation and responsibility as a contractor warranted awarding to him the work. Inasmuch as it was understood that Mr. Shea had just finished a sewerage plant at Houston, Texas, involving a considerable sum of money, and before that was engaged in municipal work in Mobile, Alabama, the Engineer was directed to communicate with the City of Houston, Texas, and the City of Mobile, Alabama, to obtain information as to the standing and reputation of Mr. Shea.

"Various testimonials have been submitted to the Committee, endorsing Mr. Shea, not only personally, but as a faithful and efficient contractor. The President of the Ricker National Bank of Quincy, Illinois, under date of January 29, 1902, and the Cashier of the State Savings, Loan and Trust Company, under date of January 29, 1902, speak of Mr. Shea in favorable terms and state that he owns considerable property in Quincy, Illinois. The Mayor of Houston, Texas, under date of January 24, 1902,

the Board of Public Works of the City of Houston, under date of January 24, 1902, and the Finance Committee of the City of Houston, under date of January 24, 1902, speak in the highest terms of the way in which Mr. Shea fulfilled his contract with the City of Houston, and recommended him as straightforward and conscientious in the fulfillment of his several contracts with that city. In addition to the above, Mr. Shea has laid before the Committee a number of other testimonials of like character.

"The Committee have informed Mr. Potter that in their opinion the Joint Body will require a corporate bond, and are informed by him that Mr. Shea has made arrangements for the delivery of such a bond.

"All of which is respectfully submitted.

"Dated February 13, 1902.

"Francis Speir, Jr.,
"E. D. Tuttle,
"C. V. Baumann."

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That the proposal of T. J. Shea, of Quincy, Illinois, he being the lowest responsible bidder, be accepted; that the proposal be reduced to a contract in writing, and a satisfactory bond in the penal sum of sixty-five thousand dollars, to be approved by the Joint Meeting, shall be required from and given by him for the faithful performance of his contract."

Motion was duly seconded, and on vote being taken was unanimously carried.

Mr. Eschenfelder moved that when the meeting adjourn it would adjourn to meet on Thursday, February 20, 1902, at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

The report of the Committee on Private Rights of Way was read as follows:

"The Committee on Private Rights of Way respectfully report as follows:

"Under resolution of January 9, 1902, the Committee on Private Rights of Way were directed to prepare a resolution for the taking of land and the compensation to be paid therefor. The Committee, at their several sessions, have gone over with Messrs. Adams and Maguire each separate plot of land in detail, together with the features of each particular plot, and have prepared separate schedules showing assessed valuation, nature of land affected, principal items of damage done, and a reasonable sum which in their judgment should be offered to cover rights

taken and damages to be suffered. The Committee, under advice of Counsel, have prepared the necessary resolution, which is submitted herewith, after having been shown to the Executive Committee.

"Respectfully submitted,

"Francis Speir, Jr.,
"E. D. Tuttle,
"A. Eschenfelder.

"Dated, February 13, 1902."

The Resolution submitted by the Committee on Private Rights of Way was read as follows:

"Be it Resolved by the Joint Meeting of the Municipalities constructing with each other a Joint Outlet Sewer or outlet sewer to tidewater, that the said Joint Meeting deems it necessary and has determined to take and appropriate for the purpose of said improvement, the following described lands, real estate and interest therein, shown on maps or plans on file in the office of the Joint Meeting, showing the location of the Joint Outlet Sewer for South Orange, New Jersey, and adjacent municipalities, prepared by Alexander Potter, Chief Engineer, and entitled as follows: Through Elizabeth, N. J., on Bayway, Staten Island Sound, to Westfield Avenue, Central Division Trunk Sewer, Bayway to Union Avenue, Western Division Trunk Sewer Union Avenue to Milburn Avenue, South Orange Division Milburn Avenue to South Orange Avenue, South Orange Division, Montrose Avenue to South Orange Avenue, Milburn and Summit Divisions, Irvington Division Trunk Sewer to Clinton Avenue, Clinton Avenue, to Orange Avenue, Vailsburg Division, Orange Avenue to South Orange Avenue, belonging to the following owners: Plot No. .. belonging to ..... the right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet Sewer and designated at Plot No. 1 on said map entitled and described as follows: Beginning .....

"And be it further Resolved, That said Joint Meeting deems a reasonable compensation for said lands and real estate and interest therein to be paid to the owners thereof the following sums of money, and does authorize contracts to be made for the purchase of said lands and real estate and interest therein for said sums of money following, viz.: Said Plot No. .. to ..... the sum of .....

Mr. Baumann moved that the resolution for the taking of land be adopted as recommended by the Committee on Private Rights of Way. Motion was duly seconded, and on vote being taken was unanimously carried.

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of five thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer, designated as XA.

"Be it further Resolved, That the Secretary give notice to the various municipalities of such assessment and of the proportion thereof to be paid by each of the municipalities.

"And Resolved further, That said monies be paid to the Treasurer of the Joint Meeting within twenty days from the 13th day of February, 1902."

Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Thomas F. Moore	$ 25.00
William B. Adams	134.60
Patrick McGuire	71.00
Francis S. Phraner	500.00
William Rollinson	841.67
Leschziner & Co.	54.16
Henry Keenan & Son	31.50
New York and New Jersey Telephone Company	13.95
P. H. & J. Conlan	498.49
P. H. & J. Conlan	11.56
The New Century Livery and Boarding Stable	15.00
Orange Journal Publishing Company	63.60
Newark Evening News	9.50
New Jersey Frei Zeitung	15.75
The Sunday Call	11.40
J. H. Warner	40.50
The Engineering News Publishing Company	67.50
The Engineering Record	48.00

Mr. Lyon moved that the House Committee be authorized to purchase a suitable safe for the meeting rooms. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Engineer be instructed to prepare copies of the maps of the sewer and have them bound in book form. Motion was duly seconded, and on vote being taken was carried.

Chair suggested that the Second Section of the Sewer be taken up by the Joint Meeting and instruct the Engineer to prepare the plans and specifications, etc.

Mr. Riker advised that the matter be laid over until after the bills had passed the Legislature.

Mr. Eschenfelder moved that the Chair be instructed to fill the vacancy on the House Committee. Motion was duly seconded, and on vote being taken was carried.

Chair appointed Mr. Glazier to fill the vacancy on the House Committee.

Mr. Potter suggested that a resolution be offered to change the line and grade in the Second Section as shown in the plans recently submitted by him.

Mr. Lyon moved that the question of changing the line and grade in the Second Section be referred to the Executive Committee to make a report at the next Joint Meeting.

Mr. Lyon moved that when the first ground was broken for the sewer that the Committee should hold a formal meeting on the ground. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of February 20, 1902.

Joint Meeting held February 20, 1902.

On roll being called it was found that all of the municipalities were represented with the exception of Irvington, Summit and Milburn.

On motion the reading of the minutes of the previous meeting was dispensed with.

Recommendations of the Executive Committee were read as follows: Recommended, That the proposed change in the line of the sewer on Union Avenue, recommended by Mr. Potter, be adopted.

Mr. Glazier moved that the matter be laid over until the next

meeting. Motion was duly seconded, and on vote being taken was carried.

Recommended by the Executive Committee to the Joint Meeting the approval of the proposed bond in the penal sum of $65,000, tendered by Mr. Shea with the American Surety Company, as surety.

Mr. Baumann moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Recommended by the Executive Committee to the Joint Meeting, that on the execution, delivery and approval of the contract and bond given by Mr. Shea, the Permanent Chairman and Secretary be directed to draw a warrant to the order of Mr. Shea for the $5,000 deposited by him together with interest thereon at six per cent. from January 16, 1902, as specified in specifications under Notice to Bidders.

Mr. Eschenfelder moved that the recommendations of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Glazier moved the adoption of the following resolution:

"Resolved, That the contract between the Joint Meeting and Thomas J. Shea, as presented, be approved and that the Permanent Chairman and Secretary be directed to execute the same in triplicate, when executed by the contractor accompanied by the bond of the contractor with the surety approved by this body, and when approved by the Counsel."

Motion was duly seconded and on vote being taken was carried.

Bill of J. Randolph Woodruff in the sum of $588.15, for legal services rendered and traveling expenses, was read, and on motion ordered paid.

Bill of Noonan Brothers in the sum of $8, for carriage hire in taking agents on private rights of way over the line of the sewer, was read, and on motion ordered paid.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of March 13, 1902.

On roll being called it was found that all of the municipalities were represented, with the exception of Newark.

It was suggested that the minutes of the previous meetings be approved as printed. Secretary stated that the printed minutes were not complete, inasmuch as they did not include the description of, or the consideration to be paid for, the various tracts of property in the resolution for the taking of land for the rights of way for the sewer.

Mr. Speir moved that the minutes be approved as printed, with the exception of the portion omitted in the resolution for the taking of land for the rights of way for the sewer. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

That the question of going under the bridge at Springfield Avenue be taken up with the County Engineer, and that Mr. Tuttle be appointed as a Committee of One to go over this matter with the County Engineer.

Mr. Eschenfelder moved that the recommendations of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Recommended by the Executive Committee, That the contract and specifications of all the sections of the sewer be referred to the Committee on Specifications to examine with the Engineer and Counsel and to make a report on the same to the Joint Meeting, with the opinion of Counsel.

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker said that the titles to the various tracts of land would have to be searched before the matter could be laid before a Commission and that he had received an offer from the Fidelity Trust Company to furnish the chain of titles on the basis of $30 per title in Union County and $25 per title in Essex County, which offer he considered very reasonable.

Mr. Speir moved that the Permanent Chairman be authorized to execute a contract with the Fidelity Trust Company for the

searching of the titles of the properties through which the sewer will pass, the consideration for making such searches not to exceed $30 per title in Union County and $25 per title in Essex County. Motion was duly seconded, and on vote being taken was carried.

Mr. Lyon moved that the Chairman of the Joint Meeting be authorized to execute a contract with P. H. & J. Conlan for the necessary test borings, in the Second Section, on the terms of the previous contract, this contract not to exceed the sum of $500. Motion was duly seconded, and on vote being taken was carried.

The Legislative Committee reported that Bills Nos. 1, 2 and 3 of the Assembly had passed the Legislature and been signed by the Governor.

Mr. Riker suggested that Morristown be formally advised of the passage of the bills.

Mr. Eschenfelder moved that the Secretary be instructed to communicate with Morristown and call their attention to the passage of Bills Nos. 1, 2 and 3 of the Assembly. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker reported that he was in receipt of a communication from the Lehigh Valley Railroad, stating that they were drawing up a contract granting the right of way to the Joint Outlet Sewer across their right of way, and that the consideration for the same would be nominal.

Mr. Speir said that the Committee on Private Rights of Way, on further examination of the maps of the South Orange Division, had concluded that it would be advisable to change the line of the sewer above Baker Street, between the South Orange Station and the Maplewood Station, so as to bring it on the right of way of the Delaware, Lackawanna & Western Railroad, as in this way we would avoid going through Benjamin's property and the worst part of the Manda tract.

Mr. Eschenfelder moved that the matter of the proposed relocation of the sewer in the South Orange Division to the right of way of the Delaware, Lackawanna & Western Railroad be referred to the Engineer and if it proves feasible from an engineering standpoint to refer the matter to the Counsel to negotiate with the Delaware, Lackawanna & Western Railroad Company. Motion was duly seconded, and on vote being taken was carried.

It was moved that when the meeting adjourned it would adjourn to meet on Thursday, March 27, 1902, at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir said that the proposed relocation of the sewer on Salem Road had been carefully examined by the Executive Committee and that they were unanimously in favor of its adoption; that it had come up at the last Joint Meeting and was laid over until this meeting, because there were only four of the seven municipalities represented at that meeting.

Mr. Eschenfelder moved that the proposed change or relocation of the sewer on Salem Road be adopted. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Wm. B. Adams	$110.50
Henry Keenan & Son	16.00
Cannon's	6.80
Leschziner & Co.	54.16

Bill of Macknet & Doremus in the sum of $137.50, for safe for meeting rooms was read. Mr. Lyon moved that the bill be paid after it had been certified to by Mr. Baumann. Motion was duly seconded, and on vote being taken was carried.

Bill of G. P. Powell, in the sum of $25, for furnishing copies of the bills introduced in the Legislature was read. It was moved and seconded that the bill be laid on the table until the close of this session of the Legislature, and on vote being taken was carried.

Mr. Lyon moved that the Chair appoint a Committee of Three to make arrangements for a formal breaking of the ground on the Joint Outlet Sewer. Motion was duly seconded and on vote being taken was carried. Chair appointed Messrs. Lyon, Eschenfelder and Hand to serve on the Committee.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of March 27, 1902.

In the absence of the Permanent Chairman, the Secretary called the meeting to order. Mr. Speir moved that Mr. Eschenfelder take the Chair. Motion was duly seconded, and on vote being taken was carried.

On roll being called it was found that all the municipalities were represented, with the exception of Newark. On motion the reading of the minutes of the previous meeting was dispensed with.

The report of the Committee on Specifications was read as follows:

"The Committee on Specifications hereby respectfully report:

"The plans and particular specifications for the construction of the Second Section of the Outlet or Trunk Sewer from a point in Bayway, south of Morris Avenue, to the point where Union Avenue crosses the Elizabeth River, of the dimensions heretofore determined by this body, referred by the Joint Body to this Committee, have been carefully considered by this Committee, and have been passed by Counsel as approved, and we therefore recommend these plans and specifications to the Joint Body.

"Francis Speir, Jr.,
"E. D. Tuttle."

It was moved that the report be approved and placed on file. Motion was duly seconded, and on vote being taken was carried.

The following resolution drawn by Counsel was read:

"Whereas, The Engineer of the Joint Meeting has presented plans and particular specifications for the construction of the Second Section of the Outlet or Trunk Sewer from a point on Bayway, south of Morris Avenue, to the point where Union Avenue crosses Elizabeth River, of the dimensions heretofore determined by this body.

"Resolved, That said plans and particular specifications presented by the Engineer be forthwith filed in the office of this Joint Meeting; that Thursday, the eighth day of May, nineteen hundred and two, at 8:30 o'clock in the evening, be designated as the time for a meeting of this Joint Body at its usual place of meeting, to receive proposals in writing for doing the work and furnishing materials for the construction of the aforesaid Second Section of said Outlet or Trunk Sewer, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement in the following newspapers published or circulating

in the municipalities jointly contracting, namely, The Newark Evening News, The Engineering Record, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, at least two weeks before the time herein designated, of the work to be done and the materials to be furnished on the said specifications; that said advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that all proposals will be subject to rejection by the Joint Meeting in accordance with the directions of the statute."

Mr. Speir moved that the resolution drawn by Counsel be adopted. Motion was duly seconded, and on vote being taken was carried.

The report of the Executive Committee was read as follows:

"Owing to the fact that the payments on account of the contracts for sewerage construction provide that the monthly payments to the Contractor shall be made prior to the 10th of each month for the month last past, it becomes necessary to change the rules of the Joint Body, so as to provide for a meeting on the first Thursday after the first Monday, instead of the second Thursday. We therefore recommend such change of the rules."

Mr. Speir moved that the recommendation of the Executive Committee to change the time of the regular meeting of the Joint Body to the first Thursday after the first Monday in each month, be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Phraner said that he had been advised by the Engineer that the monthly payments on the Sewer would be about $10,000, and suggested that an assessment be levied for that amount.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of ten thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer, designated as XA.

"Be it further Resolved, That the Secretary give notice to the various municipalities of such assessment and of the proportion thereof to be paid by each of the municipalities.

"And Resolved further, That said monies be paid to the Treasurer of the Joint Meeting within twenty days from the 27th day of March, 1902."

Motion was duly seconded, and on vote being taken was carried.

Counsel submitted a form of contract drawn by J. F. Schaperkoter, of the Lehigh Valley Railroad Company, in the matter of selling the right of way for the Sewer across the right of way of the Lehigh Valley Railroad. Mr. Riker stated that he had examined the proposed contract, and recommended that it be executed by the Joint Meeting.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the contract submitted by J. F. Schaperkoter, of the Lehigh Valley Railroad Company, be approved by the Joint Meeting, and that the Permanent Chairman and the Secretary be directed to execute the same."

Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle reported that George F. Garwood had agreed to sell the right of way for the Sewer through Plot No. 56 for fifty-eight dollars, or ten dollars more than the amount fixed in the resolution passed February 13, 1902. Mr. Speir moved that George F. Garwood be paid fifty-eight dollars for the right of way for the Sewer through Plot No. 56. Motion was duly seconded, and on vote being taken was carried.

The Secretary read a communication from Mr. Hurtzog, Chairman of the Sewerage Committee of Morristown, in reply to his letter advising Morristown of the passage of Bills Nos. 1, 2 and 3, of the Assembly. Mr. Hurtzog stated that the Committee thought it advisable to wait until certain bills, which they had introduced, had passed the Legislature, before taking any steps to join with the other municipalities in their Joint Outlet Sewer. Mr. Speir moved that the communication be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter submitted specifications for Sections Nos. 3, 4, 5 and 6, of the Sewer. Mr. Speir moved that they be referred to the Committee on Specifications to examine with Counsel and to make a report at the next meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved that the Secretary be directed to have

printed the Specifications, Instructions to Bidders, etc., of Section 2, in book form, similar to those printed for Section 1. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that a Committee of Three be appointed by the Chair to draft a resolution expressing the regret of the Joint Meeting on the retirement of Mr. Lyon from the Board. And that said resolution be properly attested by the officers of this body and presented to Mr. Lyon. Motion was duly seconded, ond on vote being taken was carried.

Chair appointed Messrs. Speir, Tuttle and Hand as a Committee to draw the resolution.

Mr. Glazier moved that the Chair appoint a member to fill the vacancy in the Auditing Committee. Motion was duly seconded, and on vote being taken was carried.

Chair appointed Mr. Baumann to fill the vacancy in the Auditing Committee.

Mr. Tuttle reported that he had seen Mr. Owen, County Engineer, in regard to the Sewer going under the bridge on Springfield Avenue, in Irvington, and that Mr. Owen had advised him that they were about to rebuild the bridge and that if he were furnished with the pipe he would put it in when the bridge was rebuilt.

On being asked, Mr. Potter said that the pipe required for this matter would cost about thirty dollars.

Mr. Riker suggested the adoption of the following resolution:

"Resolved, That the Executive Committee be authorized to enter into a contract with the Board of Chosen Freeholders of the County of Essex to lay the pipe across Springfield Avenue, in Irvington, and to purchase the pipe necessary for this purpose at a cost not to exceed fifty dollars."

Mr. Speir moved that the resolution advised by Counsel be adopted. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved that the Committe on Private Rights of Way take up the matter of obtaining the right of way through Milburn and push it through as fast as possible. Motion was duly seconded, and on vote being taken was carried.

The question of allowing the mills in Milburn to drain into the Sewer was taken up and discussed.

Mr. Speir moved that Mr. Potter be instructed to make an examination of the mills in question, and to make a report to the Joint Meeting and also to Mr. Cox, Chairman of the Township Committee of Milburn, as to the amount of sewage the mills would discharge into the Sewer, and also as to whether the nature of the sewage discharged by the mills would be detrimental to the maintenance of the Sewer. Motion was duly seconded, and on vote being taken was carried.

Mr. Glazier moved that the spade which had been used at the formal "breaking of the ground" for the Sewer, be retained by the Joint Meeting until the Sewer was completed, and then given to Mr. Sinclair. Motion was duly seconded, and on vote being taken was carried.

The following bills which had been passed by the Auditing Committee were read:

To Patrick J. McGuire, for six weeks' salary and traveling expenses, $89.05.

To the New York and New Jersey Telephone Company, for quarterly rent of telephone in advance, $11.55.

Mr. Glazier moved that the bills be paid. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of April 10, 1902.

In the absence of the Permanent Chairman the Secretary called the meeting to order.

Mr. Speir moved that Mr. Eschenfelder take the chair. Motion was duly seconded, and on vote being taken was carried.

On roll being called it was found that all of the municipalities were represented.

On motion the reading of the minutes of the previous meetings was dispensed with.

The report of the Executive Committee was read as follows:

"The Executive Committee respectfully report: (1) That Mr. Riker, Mr. Potter and Mr. Speir met the Township Committee of Union Township at the office of their Counsel, Mr. English, in Elizabeth, and had a conference concerning the right of way through Union Township. After considerable negotiation they arrived at an arrangement and form of contract that seemed satisfactory to both the Committee of the Joint Body and the Township Committee, and was approved by Mr. English, as Counsel for Union Township, and drawn and approved by Mr. Riker, as Counsel for the Joint Body, Mr. Riker having drawn the amendments to the contract heretofore drawn by him and submitted to the Township of Union. The terms of the proposed contract are that Union Township shall pass the usual ordinance and enter into a contract with the Joint Body for a right of way over the Township on the line of the proposed sewer, the Joint Body to formally agree to replace the roads in such condition as they were before and to be responsible for damages, the Joint Body to agree that the Township of Union shall from the quota of 375,000 gallons per diem allotted to that territory have the right to use a quantity not exceeding 150,000 gallons per diem without making any payment therefor; on exceeding that amount and up to 250,000 gallons per diem, they shall pay $900 in cash; on exceeding 300,000 gallons per diem they shall pay an additional sum of $700—making in all the sum of $2,500 to be paid by them for sewerage rights to the extent of 375,000 gallons.

"On receiving the report the Executive Committee, on motion, unanimously approved of the proposed arrangement, and hereby recommend it to the Joint Body for adoption."

Mr. Glazier moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"(2) The Executive Committee have received assurances from

Mr. English that the necessary ordinances will be passed without delay.

"In the matter of leasing sewerage capacity to the Borough of Roselle Park, the Executive Committee have approved the leasing of the quota arranged for that locality, amounting to 375,000 gallons per diem, on payment of the sum of $7,500 in cash, when the sewer is in operation, this sum being once and a half times the proposed cost to Roselle Park, but being rendered necessary by the refusal of the Township of Union to pay its full quota of $5,000.

"On these figures the Borough of Roselle Park and the Township of Union taken together would pay their full quota, as if they had come in on the same basis as the other municipalities.

"The Executive Committee recommend that the proper contract be entered into with Roselle Park on this basis, whenever they are prepared to pass the necessary ordinance and enter into the contract."

Mr. Tuttle moved that the recommendation of the Executive Committee in regard to Roselle Park be concurred in. Motion was duly seconded, and on vote being taken was carried.

"(3) The Executive Committee hereby recommend that the lines of the sewer as relocated through the Benjamin property be recommended to the Joint Meeting for its action, and that the sum of $300 be paid Mr. Benjamin in full for his consent."

Mr. Tuttle moved that the relocation of the sewer through the property of Orren C. Benjamin be adopted, and that he be paid $300 for the right of way as recommended by the Executive Committee. Motion was duly seconded, and on vote being taken was carried.

"(4) The Executive Committee report that the Counsel has the matter of the searches ordered by the Joint Body in hand, and that they are being prepared by the Fidelity Trust Company, as arranged.

"Francis Speir, Jr.,
"Chairman."

The report of the Committee on Private Rights of Way was read as follows:

"The Committee on Private Rights of Way respectfully report that they have been engaged in the question of obtaining private rights of way, and submit herewith the report of Messrs. Adams and McGuire, who have been employed in obtaining such rights of way, with a schedule of the properties, amount offered, list of rights of way obtained and list of those not yet obtained.

Joint Meeting of April 24, 1902.

On roll being called it was found that all of the municipalities were represented.

Mr. Speir moved that the minutes of the previous meetings be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

Recommended: "That the Joint Meeting direct the Permanent Chairman and Secretary to execute the contract with the Township of Union after same had been approved by Counsel." Mr. Baumann moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Recommended: "That Morristown be communicated with, advising them that the Joint Meeting were about to advertise for bids on all the sections, and asking when Morristown would be prepared to decide as to whether they will join with the other municipalities in the Joint Outlet Sewer." Mr. Tuttle moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

The report of the Engineer was read as follows:

"April 24, 1902.

"Joint Meeting: Gentlemen:—According to the instructions of the Joint Meeting I have made a survey and investigation of the change in the line through the Third Section of the Sewer, with the object in view of following as closely as possible the line of the right of way of the old Peapack Railroad.

"It is my judgment that this line will cost the additional sum of $7,000 to construct, due to the fact that the length of the tunnel will be increased probably about 1,000 feet.

"By following this right of way we avoid the property of the Elizabeth Water Company, who would unquestionably place every obstacle in our way of crossing property in the vicinity of the wells which they are now sinking on the present line of our Sewer.

"It is further safe to say that by following the line of the railroad right of way it is possible to save about $2,000 in the cost of our right of way, besides the litigation which would neces-

sarily follow any attempt to cross many parts of the right of way as it is now laid down.

"After giving the matter due consideration, I would strongly recommend the adoption of the change of the line. If this recommendation is adopted we will proceed immediately to preparation of the different changes in the location line. This should not delay the calling for bids on the work for the relocation of the line would not consume more than a few days and will not change the specifications in any way, but will simply modify the amount of the various depths of cutting on this section.

"Respectfully submitted,

"ALEXANDER POTTER."

Recommendation of the Executive Committee was read as follows:

Recommended: "That the change in the line of the Sewer advised by Mr. Potter in his communication be recommended to the Joint Meeting for adoption." After discussion Mr. Eschenfelder moved that the recommendation of the Executive Committee to change the line of the Sewer be concurrd in. Motion was duly seconded, and on vote being taken was unanimously carried.

Recommended: "That the following notice be printed on all maps and profiles: The Joint Meeting reserves the right to change the location of the Sewer through this section if necessary, paying for any alterations in quantities of unit prices bid, no claim for alleged altered conditions will be considered." Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir submitted the following Memorandum for proposed agreement between the Joint Meeting and the Borough of Roselle Park, as considered and proposed by Mayor Cummings on behalf of the Borough of Roselle Park and Francis Speir, Jr., as Chairman of the Executive Committee of the Joint Body:

I. The Borough to be given a capacity in the Joint Trunk Sewer of 375,000 gallons per diem.

II. The Borough to have the right to have one tap or connection with the Joint Sewer at some point on Bayway north of the crossing of the Jersey Central Railroad, to be hereafter designated by the Borough, such tap or connection to be made

Lyon. Motion was duly seconded and on vote being taken was carried.

Mr. Speir moved that Counsel be requested to give an opinion as to whether it would be necessary to get a formal consent to the sewer running through the municipalities which had jointly contracted to build the Joint Outlet Sewer. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder raised the question as to whether the Joint Meeting should pay for the spade used in the formal breaking of ground.

Mr. Glazier moved that the Joint Meeting pay for the spade. Motion was duly seconded, and on vote being taken was carried.

The Secretary stated that the private rights of way men had obtained an option on Plot No. 34 belonging to Morris Allen for $140, subject to the approval of the Joint Meeting.

Mr. Speir moved that the option be ratified and the necessary deed executed. Motion was duly seconded and on vote being taken was carried.

The Engineer was asked to report on the question of changing the line of the sewer so as to keep on the Peapack and Passaic Valley right of way.

Mr. Potter reported that he had examined the ground, and that if this change were made it would necessitate a much longer tunnel and would cost between $6,000 or $7,000 more than the present location.

Mr. Speir reported that he had talked with Ludwig Batt in reference to obtaining the right of way through his property and submitted the following communication, which he had received:

"Francis Speir, Jr., South Orange:—

"Dear Sir:—Complying with your request regarding right of way over my property along the river for laying sewer pipe, I make this proposition which I desire to have considered as final and it is much more reasonable that I would make to any outside town.

"I own about 700 feet lineal along the river and will give you a right of way over a strip twenty-five feet wide fronting on Third Street, with a depth of one hundred and seventy-five feet and measured from the middle of the river northwesterly for the sum of twelve dollars per front foot, which is exactly what it cost me, for the remainder of the land, which I own I will give you a right of way over it for the sum of fifteen cents per lineal foot with the understanding that the pipe must be laid in the river abreast of the Lum Building and the Village are responsible for

all damages to wall, if disturbed to be replaced in as substantial a manner, as it exists at present, and provided further that the pipe is laid elsewhere along my property within twenty feet of the middle of the river, and also provided that no obstructions are placed on the surface that will interfere with the free use of the premises above the pipe.

"Very truly yours,

"LUDWIG BATT."

Mr. Speir said that Mr. Batt meant to say that he would sell the 25x175 foot strip outright for $12 a front foot, and that he would move that an arrangement be made to buy outright the strip of land 25x175 feet for $300, and to buy the right of way through the remainder of Mr. Batt's property at the rate of fifteen cents a lineal foot, as outlined in the communication, with the exception that the distance of the line of the sewer from the middle of the brook should be twenty-five feet instead of twenty feet. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle said that he thought that it would be wise to amend the resolution in regard to the Patrick Larney tracts.

Mr. Speir moved that Mr. Tuttle be authorized to negotiate with Patrick Larney to buy right of way through both tracts (Plots Nos. 45, 24) for a sum not to exceed ..... Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Wm. B. Adams	$115.60
Alexander Potter	12.90
G. P. Powell	25.00
Chas. O. Lyon	57.50
Wm. Rockafeller	4.50
Orange Journal Publishing Company	20.96

Mr. Speir moved that when the meeting adjourned it would adjourn to meet in two weeks. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir said that the Committee on Specifications had not had sufficient time to consider the specifications of Sections Nos. 3, 4, 5 and 6, but would make a report at the next meeting.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of April 24, 1902.

On roll being called it was found that all of the municipalities were represented.

Mr. Speir moved that the minutes of the previous meetings be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

Recommended: "That the Joint Meeting direct the Permanent Chairman and Secretary to execute the contract with the Township of Union after same had been approved by Counsel." Mr. Baumann moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Recommended: "That Morristown be communicated with, advising them that the Joint Meeting were about to advertise for bids on all the sections, and asking when Morristown would be prepared to decide as to whether they will join with the other municipalities in the Joint Outlet Sewer." Mr. Tuttle moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

The report of the Engineer was read as follows:

"April 24, 1902.

"Joint Meeting: Gentlemen:—According to the instructions of the Joint Meeting I have made a survey and investigation of the change in the line through the Third Section of the Sewer, with the object in view of following as closely as possible the line of the right of way of the old Peapack Railroad.

"It is my judgment that this line will cost the additional sum of $7,000 to construct, due to the fact that the length of the tunnel will be increased probably about 1,000 feet.

"By following this right of way we avoid the property of the Elizabeth Water Company, who would unquestionably place every obstacle in our way of crossing property in the vicinity of the wells which they are now sinking on the present line of our Sewer.

"It is further safe to say that by following the line of the railroad right of way it is possible to save about $2,000 in the cost of our right of way, besides the litigation which would neces-

sarily follow any attempt to cross many parts of the right of way as it is now laid down.

"After giving the matter due consideration, I would strongly recommend the adoption of the change of the line. If this recommendation is adopted we will proceed immediately to preparation of the different changes in the location line. This should not delay the calling for bids on the work for the relocation of the line would not consume more than a few days and will not change the specifications in any way, but will simply modify the amount of the various depths of cutting on this section.

"Respectfully submitted,

"ALEXANDER POTTER."

Recommendation of the Executive Committee was read as follows:

Recommended: "That the change in the line of the Sewer advised by Mr. Potter in his communication be recommended to the Joint Meeting for adoption." After discussion Mr. Eschenfelder moved that the recommendation of the Executive Committee to change the line of the Sewer be concurrd in. Motion was duly seconded, and on vote being taken was unanimously carried.

Recommended: "That the following notice be printed on all maps and profiles: The Joint Meeting reserves the right to change the location of the Sewer through this section if necessary, paying for any alterations in quantities of unit prices bid, no claim for alleged altered conditions will be considered." Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir submitted the following Memorandum for proposed agreement between the Joint Meeting and the Borough of Roselle Park, as considered and proposed by Mayor Cummings on behalf of the Borough of Roselle Park and Francis Speir, Jr., as Chairman of the Executive Committee of the Joint Body:

I. The Borough to be given a capacity in the Joint Trunk Sewer of 375,000 gallons per diem.

II. The Borough to have the right to have one tap or connection with the Joint Sewer at some point on Bayway north of the crossing of the Jersey Central Railroad, to be hereafter designated by the Borough, such tap or connection to be made

by the Joint Body or under their inspection, and to their satisfaction.

III. The Borough to have the right to allow to pass through their pipe or connection as above set forth sewage coming outside of the Borough from any part of what now constitutes the Township of Union or from any municipality that may hereafter be set apart therefrom, provided such sewage coming from outside of the Borough shall be charged against and considered a part of the quota belonging to the Township of Union under its ordinance and contract with the Joint Body, and is to be measured by weir measurement when it taps the sewer of the Borough of Roselle Park. Such weir measurement to be constructed to the satisfaction of the Joint Body and its Chief Engineer.

IV. The agreement between the Joint Body and the Borough of Roselle Park is to be passed as an ordinance by the Borough and the agreement duly authorized.

V. The Borough is to agree that no substance shall pass into the Sewer prohibited by the general regulations established by the Joint Body for all the municipalities using the same and to comply with the general rules governing such use.

VI. The Borough shall pay to the Joint Body for said capacity of 375,000 gallons per diem the sum of $7,500, which sum shall be paid on or before the day when the Joint Sewer is constructed and ready for use, and the connection with the Borough shall have been made and be ready for use, provided said connection be made by the Borough within two years from the date of this agreement. If no connection is made with the Joint Sewer within that time, then this agreement to be void and of no effect.

Recommendation of the Executive Committee was read as follows:

Recommended: "That it be recommended to the Joint Meeting that a contract be drawn and entered into with Roselle Park on the lines of the Memorandum for Proposed Agreement." Mr. Eschenfelder moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was unanimously carried.

"Report of the Committee on Specifications was read as follows:

"The Committee on Specifications respectfully report that they have carefully examined the specifications of the Third, Fourth, Fifth and Sixth Sections of the Joint Trunk Sewer referred to them for consideration. Mr. Baumann, of the Committee, has gone over the matter most thoroughly with the Chief Engineer, Mr. Adam, of the Board of Works, has made certain suggestions which have been considered, with others, and the Committee recommend that the specifications be approved with the changes set forth in the paper hereto annexed, marked Exhibit A.

REPORT ON CHANGES RECOMMENDED IN SPECIFICATIONS.

"We would recommend that the list of quantities bid upon include a specific number of asphalt joints of various sizes of sewer to be built, which list is as follows:

South Orange Division.

Section 4.— 600 joints asphalt construction on 22-inch pipe, additional price per joint, $....., each $.....
1000 joints asphalt construction on 24-inch pipe, additional price per joint, $....., each $.....

Irvington-Newark Division.

Section 5.— 300 joints asphalt construction on 18-inch pipe, additional price per joint, $....., each $.....
1000 joints asphalt construction on 10-inch pipe, additional price per joint, $....., each $.....
200 joints asphalt construction on 10-inch pipe, additional price per joint, $....., each $.....
200 joints asphalt construction on 12-inch pipe, additional price per joint, $....., each $.....
200 joints asphalt construction on 15-inch pipe, additional price per joint, $....., each $.....
300 joints asphalt construction on 18-inch pipe, additional price per joint, $....., each $.....
300 joints asphalt construction on 20-inch pipe, additional price per joint, $....., each $.....
300 joints asphalt construction on 22-inch pipe, additional price per joint, $....., each $.....
300 joints asphalt construction on 24-inch pipe, additional price per joint, $....., each $.....

Milburn Division.

Section 6.— 200 joints asphalt construction on 24-inch pipe, additional price per joint, $....., each $....

"We would recommend that a specific number of branches on

the sizes of pipe be specified on each Section and that the contractors be asked for prices thereon. Which list is as follows.

South Orange Division.

Section 4.— 20 Branches on 22-inch pipe, additional price $....., each $.....
50 Branches on 24-inch pipe, additional price $..... each $.....

Irvington-Newark Division

Section 5.— 58 Branches on 8-inch pipe, additional price $....., each $.....
500 Branches on 10-inch pipe, additional price $....., each $.....
70 Branches on 12-inch pipe, additional price $....., each $.....
42 Branches on 15-inch pipe, additional price $....., each $.....
10 Branches on 18-inch pipe, additional price $....., each $.....
10 Branches on 20-inch pipe, additional price $....., each $.....
10 Branches on 22-inch pipe, additional price $....., each $.....
10 Branches 24-inch pipe, additional price $....., each $.....

Milburn Division.

Section 6.— 50 Branches on 24-inch pipe, additional price $....., each $.....

"We would suggest that the specifications be changed to call for 'Y' and 'T' Branches instead of 'T' Branches, as at present stated."

Mr. Speir moved that the report of the Committee on Specifications be received and placed on file. Motion was duly seconded and on vote being taken was carried.

Recommendation of the Executive Committee was read as follows:

"Recommended: That the report of the Committee on Specifications be changed so as to include the recommendation that the contractors must file a certified check for $5,000 with bid on each Section."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved that action on the Sixth Section be post-

poned until word had been received from Morristown stating definitely as to whether they would join in the Sewer. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved that the contract and specifications of Section 5 be taken up for approval by the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved the adoption of the following resolution:

"Whereas, The Engineer of the Joint Meeting has presented plans and particular specifications for the construction of the Fifth Section of the Outlet or Trunk Sewer from Union Avenue in Union Township to the lines of the City of Newark and South Orange Village.

"Resolved, That said plans and particular specifications presented by the Engineer be approved and forthwith filed in the office of the Joint Meeting; that Thursday, the fifteenth day of May, nineteen hundred and two, at 8:30 o'clock in the evening, be designated as the time for a meeting of this Joint Body at its usual place of meeting, to receive proposals in writing for doing the work and furnishing materials for the construction of the aforesaid Fifth Section of said Outlet or Trunk Sewer, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement inserted in the following newspapers published or circulating in the municipalities jointly contracting, namely, The Newark Evening News, The Engineering News, The Engineering Record, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, at least two weeks before the time herein designated, of the work to be done and the materials to be furnished on the said specifications; that said advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that all proposals will be subject to rejection by the Joint Meeting in accordance with the directions of the statute."

Motion was duly seconded, and on vote being taken was carried.

Mr. Glazier moved that the Fourth Section be taken up for approval by the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved the adoption of the following resolution:

"Whereas, The Engineer of the Joint Meeting has presented

plans and particular specifications for the construction of the Fourth Section of the Outlet or Trunk Sewer from Vauxhall Road through South Orange Township and Village to the West Orange Town line.

"Resolved, That said particular specifications presented by the Engineer be approved and forthwith filed in the office of this Joint Meeting, that Thursday, the twenty-second day of May, nineteen hundred and two, at 8:30 o'clock in the evening, be designated as the time for a meeting of this Joint Body at its usual place of meeting, to receive proposals in writing for doing the work and furnishing materials for the construction of the aforesaid Fourth Section of said Outlet or Trunk Sewer, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement inserted in the following newspapers published or circulating in the municipalities jointly contracting, namely, The Newark Evening News, The Engineering News, The Engineering Record, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, at least two weeks before the time herein designated, of the work to be done and the materials to be furnished on the said specifications; that said advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that all proposals will be subject to rejection by the Joint Meeting in accordance with the directions of the statute."

Motion was duly seconded, and on vote being taken was carried.

The Secretary stated that Mr. Headly was willing to sell the right of way for the Sewer through his property (Plot No. 32), for $76, which was $10 more than the amount allowed him in the resolution.

Mr. Speir moved that Mr. Headly be paid $76 for the right of way for the Sewer through Plot No. 32. Motion was duly seconded, and on vote being taken was carried.

The Secretary stated that Ludwig Batt had signed an option for the right of way through his property (Plots Nos. 80-82) for $226.80, or at the rate of 33 1-3 cents a lineal foot. Mr. Speir moved that Mr. Batt be paid $226.80 for the right of way through Plots Nos. 80-82. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that John O'Reilly be paid $40 for the right of way through Plot No. 81, or $10 more than the amount allowed in the resolution for the right of way through Plot No. 81.

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Patrick Larney be paid $200 and $300 for the right of way through Plots Nos. 24 and 25 respectively. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with Conrad Weppler on the price to be paid for the right of way through the Plot designated as Plot No. 1, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with Noah W. Parcell on the price to be paid for the right of way through the Plots designated as Plots Nos. 3 and 4, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with James O. Stiles on the price to be paid for the right of way through the Plot designated as Plot No. 9, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with John W. Stiles on the price to be paid for the right of way through the Plot designated as Plot No. 10, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree

with James O. Stiles and John W. Stiles on the price to be paid for the right of way through the Plot designated as Plot No. 11, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with the executors of the estate of William Potter on the price to be paid for the right of way through the Plot designated as Plot No. 12, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that action on Plot No. 13 be postponed. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with Fannie J. Budd on the price to be paid for the right of way through the Plots designated as Plots Nos. 14, 15 and 16, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with Wm. N. Elberson on the price to be paid for the right of way through the Plot designated as Plot No. 17, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that action on Plot No. 18 be postponed. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree

with John Eberhardt on the price to be paid for the right of way through the Plots designated as Plots Nos. 20 and 21, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that action on Plot No. 22 be postponed. Motion was duly seconded, and on vote being taken was carried.

Mr. Hand moved that action on Plot No. 23 be postponed. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Lucy Kirtland be paid $1,000 for the right of way through Plots Nos. 25, 26 and 30. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that action on Plots Nos. 27, 28, 29 and 31 be postponed. Motion was duly seconded, and on vote being taken was carried.

On motion action on Plots Nos. 33, 34, 35, 36, 37, 38, 39 and 41 was postponed.

Mr. Riker submitted a form of contract with the Township of Union, which he said he had drawn on the lines of the form of agreement passed by the Joint Meeting at the last meeting. Mr. Tuttle moved that the contract drawn by Counsel containing the provisions embodied in the ordinance of the Township of Union be approved and ordered executed. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Isaac M. Williams be offered $200 for the right of way through Plot No. 46. Motion was duly seconded, and on vote being taken was carried.

Mr. Glazier moved that Michael Dorer be paid $158 for the right of way through Plot No. 50. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Herbert Baldwin be paid $350 for the right of way through his property on the new course submitted by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Mr. Tuttle be authorized to negotiate with M. and J. Dorer for the right of way through Plot No. 57,

plans and particular specifications for the construction of the Fourth Section of the Outlet or Trunk Sewer from Vauxhall Road through South Orange Township and Village to the West Orange Town line.

"Resolved, That said particular specifications presented by the Engineer be approved and forthwith filed in the office of this Joint Meeting, that Thursday, the twenty-second day of May, nineteen hundred and two, at 8:30 o'clock in the evening, be designated as the time for a meeting of this Joint Body at its usual place of meeting, to receive proposals in writing for doing the work and furnishing materials for the construction of the aforesaid Fourth Section of said Outlet or Trunk Sewer, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement inserted in the following newspapers published or circulating in the municipalities jointly contracting, namely, The Newark Evening News, The Engineering News, The Engineering Record, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, at least two weeks before the time herein designated, of the work to be done and the materials to be furnished on the said specifications; that said advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that all proposals will be subject to rejection by the Joint Meeting in accordance with the directions of the statute."

Motion was duly seconded, and on vote being taken was carried.

The Secretary stated that Mr. Headly was willing to sell the right of way for the Sewer through his property (Plot No. 32), for $76, which was $10 more than the amount allowed him in the resolution.

Mr. Speir moved that Mr. Headly be paid $76 for the right of way for the Sewer through Plot No. 32. Motion was duly seconded, and on vote being taken was carried.

The Secretary stated that Ludwig Batt had signed an option for the right of way through his property (Plots Nos. 80-82) for $226.80, or at the rate of 33 1-3 cents a lineal foot. Mr. Speir moved that Mr. Batt be paid $226.80 for the right of way through Plots Nos. 80-82. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that John O'Reilly be paid $40 for the right of way through Plot No. 81, or $10 more than the amount allowed in the resolution for the right of way through Plot No. 81.

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Patrick Larney be paid $200 and $300 for the right of way through Plots Nos. 24 and 25 respectively. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with Conrad Weppler on the price to be paid for the right of way through the Plot designated as Plot No. 1, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with Noah W. Parcell on the price to be paid for the right of way through the Plots designated as Plots Nos. 3 and 4, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with James O. Stiles on the price to be paid for the right of way through the Plot designated as Plot No. 9, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with John W. Stiles on the price to be paid for the right of way through the Plot designated as Plot No. 10, that Counsel be directed to take action to bring the matter before a Commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree

question at once, for even if the Permanent Chairman's term of office had expired he would still hold over defacto, and any acts on his part, as, for instance, signing warrants, would be perfectly legal.

Mr. Eschenfelder moved that the matter be laid over until the next meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That only the three lowest bids be considered, and that the checks of the other bidders be returned to them; and

"Be it further Resolved, That the three lowest bids be referred to the Engineer and the Committee on Specifications to tabulate and report upon to the Joint Meeting."

Motion was duly seconded, and on vote being taken was carried.

The Chair announced that the time limit for the completion of the Second Section would be June 1, 1903.

At 8:31 Mr. Glorieux, Permanent Chairman, announced that the time for presenting bids on the Second Section had expired. The bids were publicly opened by the Permanent Chairman and read in detail. Eight bids were received in all from the following contractors, with totals as hereinafter set forth:

1.	The Harrison Construction Co., of 745 Broad St., Newark, N. J.	$ 79,348.25
2.	W. W. Read & Co., of Niagara Falls, N. Y.	84,653.20
3.	Earl & Dougherty, of 1 Exchange Place, Jersey City	87,718.18
4.	Bernard J. Sullivan, of 19 West Park St., Newark, N. J.	93,131.25
5.	Thomas J. Shea, of Quincy, Ill.	97,391.63
6.	Kelley & Kelley, of 45 E. 42d St., New York City	100,912.70
7.	Thomas Reynolds & Co., Newark, N. J.	108,806.24
8.	David Peoples, of 2649 Thompson St., Philadelphia, Pa.	124,583.50

The Secretary read the bids of the three lowest bidders and announced that the checks of all the other bidders would be returned at once in accordance with the resolution.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of May 15, 1902.

On roll being called it was found that all the municipalities were represented.

Mr. Speir moved that the reading of the minutes of the previous meetings be dispensed with, and the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Report of the Committee on Specifications was read as follows:

"The Committee on Specifications, to whom the three lowest bids for the construction of the Second Section were referred, respectfully report that they have carefully examined the bids, with the Engineer, as directed by the Joint Meeting.

"Your Committee, after giving the matter careful consideration, unanimously recommend that the bid of the Harrison Construction Company, in the sum of $79,348.25—they being the lowest bidder—be accepted.

"All of which is respectfully submitted.

"Francis Speir, Jr.,
"C. V. Baumann,
"E. D. Tuttle."

Recommendation of the Executive Committee was read as follows:

"Recommended: That the report of the Committee on Specifications be approved and that the contract for the Second Section be awarded to the Harrison Construction Company for $79,348.25—they being the lowest bidder—subject, however, to obtaining the private rights of way. And it is further

"Recommended: That the checks of W. W. Read & Co. and Earle & Dougherty be returned to them."

Mr. Speir moved that the recommendations of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Glazier moved that the bills be laid over until the next meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that James Van Houten, of Newark, N. J., be appointed Inspector on the Second Section. Motion was duly seconded, and on vote being taken was carried.

Question was raised as to the salary to be paid Mr. Van Houten.

Mr. Baumann moved that he be paid $3.50 a day. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That Charles W. Cox be and is hereby appointed a member of the Committee on Private Rights of Way." Mr. Speir seconded the motion, and on vote being taken motion was duly carried.

Counsel submitted a written opinion relative to the term of office of the Permanent Chairman of the Joint Meeting, of which the following is an abstract:

"It is my opinion that the better view and the one consistent with the general rule for the interpretation of statutes, namely, that all the words of the statutes should be given effect if possible, is that upon the election of the Chairman or upon the filling of a vacancy in that office, the person elected must at the time be a member of one of the municipal boards, but having been so elected he becomes the permanent officer of the Joint Meeting, which is a continuous body, and does not lose it by the determination of his office as a member of one of the municipal boards."

Mr. Baumann moved that the opinion of Counsel be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the proposal of The Harrison Construction Company, of 745 Broad Street, Newark, N. J.—they being the lowest responsible bidder—be accepted; that the proposal be reduced to a contract in writing and a satisfactory bond in the penal sum of $40,000, to be approved by the Joint Meeting, shall be required from and given by them for the faithful performance of their contract."

Motion was duly seconded, and on vote being taken was carried.

At 8:31 p. m. Mr. Glorieux, the Permanent Chairman of the Joint Meeting, announced that the time for presenting bids on the Fifth Section had expired.

The bids were publicly opened by the Permanent Chairman and read in detail.

Two bids were received in all from the following contractors with totals as hereinafter set forth.

1. Earle & Dougherty, of 1 Exchange Place, Jersey City, N. J. ..... $ 56,352.70
2. T. J. Shea, of Quincy, Ill. 119,582.70

(Corrected total of T. J. Shea, $119,582.70.)

Mr. Speir moved that the bids be referred to the Committee on Specifications to tabulate and report on to the Joint Meeting at the next meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved that the Secretary be instructed to write to the Sewerage Committee of Morristown, and invite them to be present at the next Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of May 22, 1902.

In the absence of the Permanent Chairman the Secretary called the meeting to order. Mr. Speir moved that Mr. Baumann take the chair. Motion was duly seconded, and on vote being taken was carried.

On roll being called it was found that all the municipalities were represented, with the exception of Milburn.

On motion the reading of the minutes of the previous meeting was dispensed with.

The report of the Committee on Specifications was read as follows:

"The Committee on Specifications, to whom the bids on the construction of the Fifth Section were referred, respectfully report that they have carefully examined the bids with the Engineer and Counsel, as directed by the Joint Meeting.

"Your Committee recommend that the check of Mr. T. J. Shea be returned to him, and the question of awarding the contract to Earle & Dougherty, the lowest bidder, be postponed for one week for further consideration.

"All of which is respectfully submitted.

"Francis Speir, Jr.,
"E. D. Tuttle,
"C. V. Baumann."

Mr. Eschenfelder moved that the report be approved and the recommendation concurred in.

Motion was duly seconded, and on vote being taken was carried.

The following recommendations of the Executive Committee were read:

"Recommended: That Mr. Van Houten make a daily report of the work on the First Section, and that the Secretary be instructed to have blank forms printed for Mr. Van Houten to fill in."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Secretary be instructed to have the Minutes of the Joint Meetings and stationery printed by the South Orange Bulletin of South Orange."

Mr. Baumann moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

The Secretary began reading the bills which had been passed by the Auditing Committee. Mr. Speir moved that the reading of the bills be deferred and that the gentlemen from Morristown be given an opportunity to speak on the question of Morristown joining in the Joint Trunk Sewer. Motion was duly seconded, and on vote being taken was carried.

Mr. Cutler, Counsel for the Sewerage Commission of Morristown, said that the Commission had only been recently appointed, and that they had not had sufficient time to go over all the data connected with the Sewer, but that they would be able to give a definite answer within a week or ten days as to whether Morristown would join in the Joint Trunk Sewer.

Mr. Riker asked that the Commission give their answer as soon as possible, as the Joint Meeting would be unable to advertise for bids on the Third and Sixth Sections until this matter had been settled.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Orange Journal Publishing Company	$ 56.85
Engineering News Publishing Company	101.10
Engineering Record	55.20
Sunday Call	15.10
New Jersey Freie Zeitung	9.25
Newark Evening News	24.50
Henry Keenan	42.00
Francis Speir Jr.,	85.00
S. Leschziner & Co.	54.16

Mr. Harrison, of the Harrison Construction Company, submitted the bond for $40,000.

Mr. Baumann moved that the bond be accepted subject to the approval of Counsel. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Permanent Chairman and Secretary be directed to execute the contract between the Joint Meeting and the Harrison Construction Company, when same had been approved by Counsel. Motion was duly seconded, and on vote being taken was carried.

At 8:31 Mr. Glorieux announced that the time for presenting bids on the Fourth Section had expired.

The bids were publicly opened by the Permanent Chairman and read in detail. Five bids were received in all from the following contractors, with totals as hereinafter set forth:

1.	Earle & Dougherty, of 1 Exchange Place, Jersey City, N. J.	$51,224.80
2.	William Hanna, of East Newark, N. J.	61,959.00
3.	David Peoples, of 2649 Thompson Street, Philadelphia, Pa.	67,829.50
4.	Batt & Martin, of South Orange, N. J.	68,869.50
5.	Kelley & Kelley, of 45 East Forty-second Street, New York City, N. Y.	75,412.30

Mr. Speir moved the adoption of the following resolutions:

"Resolved, That only the three lowest bids be considered, and that the checks of the other bidders be returned to them; and be it further

"Resolved, That the three lowest bids be referred to the Committee on Specifications, to take up with the Engineer and make a report on same to the Joint Meeting next week."

Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that when the meeting adjourned it would adjourn to meet on Thursday, May 29, at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir announced the names of the three lowest bidders and stated that the checks of all the other bidders would be returned at once, in accordance with the resolution.

Report of the Committee on Private Rights of Way, which was recommended by the Executive Committee to the Joint Meeting for adoption, was read as follows:

"Recommended: That George and John Hutmacher be paid $500 for the right of way through Plot No. 23."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended that Christopher Edge be paid $300 for the right of way through Plot No. 28."

Mr. Glazier moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Isaac M. Williams be paid $250 for the right of way through Plot No. 46."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Carl Graf be paid $75 for the right of way through Plot No. 54B, as shown on the relocation of the Sewer submitted by the Engineer."

Mr. Glazier moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Estate of Henry Fenner be paid $415.50 for the right of way through Plot No. 78."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Ludwig Batt be paid $248.93 for the right of way through Plots Nos. 80 and 82."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of May 29, 1902.

On roll being called it was found that all of the municipalities were represented, with the exception of West Orange.

Mr. Speir moved that the reading of the minutes of the previous meetings be dispensed with, and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

"Recommended: That the awarding of the contracts on the Fourth and Fifth Sections be laid over until the next meeting."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the checks of David Peoples and William Hanna be returned to them."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Harrison Construction Company be paid back their deposit of $5,000, together with interest thereon amounting to $12.50, as agreed on in the specification under Notice to Bidders."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

A proposed form of agreement with John W. Stiles for the purchase of the right of way through his property was read.

Mr. Speir moved that the clause, "within the period of one year," be inserted in the agreement after the word "brook" in the fourth line of the third paragraph on the third page, and also, if

possible, the clause, "and in the opinion of the Engineer," and further that the agreement, with these changes and the necessary corrections in form suggested by Counsel, be executed by the proper officers of the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir read a communication from W. A. Manda setting forth under what terms he was willing to sell the right of way through his property. After discussion Mr. Speir moved that the offer of Mr. Manda be accepted, subject to the approval of Counsel, and on his approving of the same that he be directed to draw an agreement on the lines of the communication, and further that W. A. Manda be paid the sum of ..... dollars for the right of way on the execution of the contract. Motion was duly seconded, and on vote being taken was carried.

Question was asked if any word had been received from Morristown. Mr. Speir said he had seen one of the members of the Commission and that they expected to make a report at the next meeting.

Mr. Cox moved that the Secretary be directed to write to the Sewerage Commission of Morristown, reminding them that the next meeting of the Joint Body was on June 5th. Motion was duly seconded, and on motion being taken was carried.

Bill of the Secretary in the sum of $663.53, for five months' salary and money advanced on private rights of way, etc., was read.

Mr. Cox moved that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

William Rollinson,
Secretary.

Joint Meeting of June 5, 1902.

On roll being called it was found that all the municipalities were represented, with the exception of Irvington.

On motion the reading of the minutes of the previous meeting was dispensed with.

The report of the Committee on Specifications was read as follows:

"The Committee on Specifications report that they have carefully considered the bids on the Fourth and Fifth Sections referred to them by the Joint Meeting, and respectfully recommend that the contract for the construction of the Fifth Section be awarded to Earle & Dougherty for $56,352.72, they being the lowest responsible bidders. Your Committee further recommend that the bids on the Fourth Section be rejected, and that the matter be re-advertised."

Mr. Speir moved that the report be approved. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved the adoption of the following resolution:

"Resolved, That the proposal of Earle & Dougherty, of 1 Exchange Place, Jersey City, for the construction of the Fifth Section, they being the lowest responsible bidders, be accepted; that the proposal be reduced to a contract in writing, and a satisfactory bond in the penal sum of thirty thousand ($30,000) dollars, to be approved by the Joint Meeting, shall be required from and given by them for the faithful performance of their contract."

Mr. Speir seconded the motion, and on vote being taken was carried.

Mr. Glazier moved the adoption of the following resolution:

"Resolved, That all the bids on the construction of the Fourth Section be rejected and that the matter be re-advertised."

Motion was duly seconded, and on vote being taken was unanimously carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That Thursday, the twenty-sixth day of June, nineteen hundred and two, at eight-thirty o'clock in the evening, be hereby designated as the time for a meeting of this Joint Body at its usual place of meeting, to receive proposals in writing for doing the work and furnishing the materials for the construction

of the Fourth Section of the Trunk Sewer from Vauxhall Road through South Orange Township and Village to the West Orange line, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement inserted in the following newspapers published or circulating in the municipalities jointly contracting, namely, The Newark Evening News, The Engineering News, The Engineering Record, The Sunday Call, The Orange Journal, the New Jersey Freie Zeitung, at least two weeks before the time herein designated of the work to be done and the materials to be furnished on said specifications; that said advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that any and all proposals will be subject to rejection by the Joint Meeting, in accordance with the direction of the statute."

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That Earle & Dougherty's $5,000 deposit on the Fourth Section be returned to them, together with interest as agreed on in the specifications."

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that, on the execution of the contract for the construction of the Fifth Section, the $5,000 deposited by Earle & Dougherty on that section be returned to them, together with interest, as agreed on in the specifications. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

"The Executive Committee recommend the adoption of the following resolutions:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of twenty thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer designated as XA. Be it further

"Resolved, That said money be paid to the Treasurer of the Joint Meeting within twenty days from the fifth day of June, 1902."

Mr. Eschenfelder moved that the resolutions recommended

by the Executive Committee be adopted. Motion was duly seconded, and on vote being taken was carried.

"Recommended, That Theodore Kettler, of Irvington, be appointed Inspector on the Second Section and that he receive a salary of $3.50 per day."

Mr. Baumann moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended, That Mr. Potter be paid $821 for extra work outside of his contract in relocating the line of the Sewer."

Mr. Cox moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Century Building, Newark, N. J.

"To the Joint Meeting:—

"Gentlemen:—I beg to enclose herewith Estimate No. 1, amounting to $5,906.56, for work done upon Section One of the Joint Trunk Sewer, and also a bill for engineering, 3 3-4 per cent., upon this work.

"Yours respectfully,

"Alexander Potter,

"Chief Engineer."

"Recommended by the Executive Committee: That T. J. Shea be paid $5,906.56 for work done on the First Section, in accordance with the terms of the contract."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Alexander Potter	$321.00
P. H. & J. Conlan	460.13
S. Leschziner & Co.	54.16
John Heron & Son	13.50
Grover Brothers	46.00
John J. Hauck	66.50
James H. Van Houten	66.84
William B. Adams	114.20

Communication from C. W. Ennis, Secretary of the Sewerage Commission of Morristown, stating that the Commission could not

at present make a definite report as to whether Morristown would join in the Trunk Sewer or not, but would do so as soon as possible.

Mr. Glazier moved that the communication be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Question was raised by Mr. Cox as to the advisability of proceeding with the Third Section and not waiting for Morristown.

Mr. Riker, on being called on, advised that bids on the Third Section be advertised for with the increased capacity to accommodate Morristown.

Mr. Speir moved that the Engineer be instructed to prepare plans and specifications for the Third Section, recommending a route, and present same at the meeting on the 26th of June. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that the Engineer be instructed to have the plans and specifications prepared in time for the Committee on Specifications to go over same before the meeting of the Joint Body. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that the Irvington Athletic Club be paid fifty dollars for a release to the Joint Meeting to lay the Sewer across their baseball grounds. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Ellen Riley, executrix, be paid $100 for the right of way through the estate. Motion was duly seconded, and on vote being taken was carried.

Secretary read proposed deed for the right of way through John W. Stile's property.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the deed submitted by Counsel for the right of way through the property of John W. Stiles and wife be approved and that the Permanent Chairman and Secretary be authorized to draw a warrant in the sum of $685.50 to the order of said John W. Stiles in payment of said right of way."

Motion was duly seconded, and on vote being taken was carried.

Mr. Potter submitted the monthly report of the work done

on the Sewer as required under his contract:

"June 5th, 1902.

"Joint Meeting, Joint Trunk Sewer,
"Newark, N. J.

"Gentlemen:—

"I beg to present my first monthly report as required by my contract with you.

"The construction work upon the Joint Trunk Sewer properly began during the month of April, but at the end of the month so little work had been actually accomplished that it was not considered necessary to make any estimate upon the work performed during that month.

"The wharf at the foot of Bayway has been completed and is in keeping with the requirements of the specifications. The construction of this dock has given the City of Elizabeth a very valuable asset. Three hundred and five (305) feet of the 72-inch sewer has been completed. On account of the unstable foundation and character of the material in the first few hundred feet of this work it was necessary to found the work upon a foundation of timber in order to give permanent stability to the construction.

"The delay in the prosecution of the work of the First Section was due to the attempt on the part of the contractor to do all his excavation with a steam shovel. This experiment on his part has occasioned the loss of two months on his work, and we now find that the character of the material that we are encountering makes it impossible to use it to advantage. We anticipate, however, that we will run out of the water bearing material in the next three or four hundred feet, after which the use of the steam shovel may prove practical.

"The contractor is rigging machinery to start at two other points on this section, one at the Penna. R. R. crossing, and the other above the Central R. R. of N. J.

"Section No. 2—Ground was broken on Monday morning last for construction work on Section No. 2 on the street between the two Parcell's tracts. The contractor has a space of 333 feet in which to work before he will be blocked on account of the non-securing of the right of way. This right of way was promised him within the next couple of weeks, and I trust that efforts will be made to secure this right of way in order that the contractor may not be delayed in the prosecution of his work. From my conferences with the people of this section of the country, I am convinced that much of the right of way cannot be secured without due process of law.

"I also submit herewith Estimate No. 1 on Section 1, and also the estimate for engineering upon this work.

"Respectfully submitted,
"Alexander Potter,
"Engineer in Charge of Construction."

Mr. Glazier moved that the report be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter stated that Hubert Pierson had agreed to sell the right of way through his property for 30 cents a running foot and $1,404.70 special averages, which would amount to $1.40 per lineal foot, and that he further agreed to release the right of way through property of Frank D. Arthur, leased by him.

Mr. Speir moved that Mr. Pierson be closed with on these terms, and that Counsel be instructed to draw a proper contract for execution.

Motion was duly seconded and carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of June 26, 1902.

On roll being called it was found that all of the municipalities were represented.

On motion the reading of the minutes of the previous meetings was dispensed with, and the minutes were approved as printed.

Recommendations of the Executive Committee were read as follows:

"Recommended: That Counsel proceed with the condemnation of the right of way through land of James O. Stiles, designated as Plot No. 9."

Mr. Tuttle moved that the recommendation be concurred in. Motion was duly seconded and carried.

"Recommended: That John W. Stiles be paid thirty dollars for the destruction of three trees, as per agreement."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Counsel proceed with the condemnation of the right of way through the estate of William Potter, designated as Plot No. 12."

It was moved and seconded that the recommendation be concurred in and on vote being taken was carried.

"Recommended: That Counsel proceed with the condemnation of the right of way through land of Fannie J. Budd, designated as Plots Nos. 14, 15 and 16."

It was moved and seconded that the recommendation be concurred in, and on vote being taken was carried.

"Recommended: That Hiram T. Jones, tenant of Fannie J. Budd, be paid $1,375 for right of way through the property and for damages to crops."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Counsel proceed with the condemnation of the right of way through land of William N. Elberson, designated as Plot No. 17."

Mr. Glazier moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Counsel proceed with the condemnation of right of way through land of John Ehrhardt, designated as Plots Nos. 20 and 21."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker read bond of Earle & Dougherty in the sum of $30,000, with the Fidelity and Deposit Company of Maryland, as surety, and stated that the bond met with his approval.

Mr. Cox moved that the bond be approved by the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that the $5,000 deposited by Earle & Dougherty with their bid on the Fifth Section be returned to them. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Permanent Chairman and Secretary of the Joint Meeting be authorized to execute the contract with Earle & Dougherty for the construction of the Fifth Section. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That the Joint Meeting having failed to agree with Dennis Long on the price to be paid for the right of way through the land designated as Plot 22, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Patrick Larney be paid $575 for the right of way through his property, instead of $500, as formerly passed by the Joint Meeting."

Mr. Tuttle moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with Charlotte Carter on the price to be paid for the right of way through the Plot designated as Plot 44, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Riker announced that there remained just one minute in which to present bids on Section 4.

At 8:31 p. m. Mr. Glorieux, Permanent Chairman of the Joint Meeting, announced that the time for presenting bids on the Fourth Section had expired. The bids were then publicly opened by the Permanent Chairman and read in detail.

Six bids were received in all from the following contractors, with totals as hereinafter set forth:

1. Earle & Dougherty, of 1 Exchange Place, Jersey City, N. J. $51,754.40
2. The Harrison Construction Co., of 745 Broad Street, Newark, N. J. 54,967.00
3. David Peoples, of 2649 Thompson Street, Philadelphia, Pa. 58,794.00
4. Batt & Martin, of South Orange, N. J. 60,016.20
5. William Hanna, of Grant and Sherman Avenues, East Newark, N. J. 61,959.27
6. No certified check for $5,000 was deposited with bid of William F. McGovern, of Trenton, and bid was thrown out on advice of Counsel for being irregular.

Mr. Cox moved the adoption of the following resolution:

"Resolved, That only the three lowest bids be considered, and that the checks of the other bidders be returned to them; and be it further

"Resolved, That the three lowest bids be referred to the Engineer and the Committee on Specifications to tabulate and report on at the next meeting."

Motion was duly seconded, and on vote being taken was carried.

The Secretary stated that the resolution directing "that the deposit of Earle & Dougherty on the Fifth Section be returned to them," did not state that they should receive interest on the same.

Mr. Cox moved that Earle & Dougherty be paid interest on the $5,000 deposit in accordance with the stipulations of the specifications. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

P. J. McGuire	$ 108.85
Henry Keenan & Son	9.00
Noonan Bros.	7.25
Newark Evening News	8.00
Engineering News Publishing Co.	27.60
The Fidelity Trust Co.	1,110.00
Ernest Adam	150.00
The Sunday Call	16.00
The New Jersey Freie Zeitung	28.20
N. Y. & N. J. Telephone Co.	22.60

Mr. Glazier moved that the Inspectors of the Joint Meeting be directed to be present at the meetings to report on the progress of the work on the Sewer.

Mr. Francis Speir offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with Noah W. Parsell on the right of way through Plot designated as Plot No. 5, and described as follows: Beginning at a point designated as Station 40-34 of the Central Division of the proposed Joint Outlet or Trunk Sewer, thence North 36 degrees 35 minutes West a distance of 151 feet, said last named point

being Station 41-85 on said Sewer, and that Counsel be directed to bring the matter before a commission to condemn the right of way through said property."

The resolution was duly seconded, and on vote being taken was carried.

Mr. Potter reported that Mr. Shea had begun work at three different places on Bayway and that it was impossible for one Inspector to inspect all the work.

Mr. Eschenfelder moved that another Inspector be appointed at a salary of $3.50 a day. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that Herman Schlegel, of Newark, be appointed Inspector on the First Section. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter read a report on his work on relocating the line of the Sewer on the Third Section, and submitted a proposed line for the Sewer for this Section. He stated that the new line would cost South Orange and West Orange together approximately about $4,000 more than the original line, but that it was necessary to make this change in order to avoid the Elizabeth Water Company's wells. After discussion Mr. Speir moved that the line of the Sewer in the Third Section be relocated in accordance with the plans submitted by the Engineer. Motion was duly seconded, and on vote being taken was carried.

"June 26th, 1902.

"To the Joint Meeting,

"Newark, N. J.

"Gentlemen:—

"I had hoped to be able to present for your consideration at your meeting this evening a plan and profile, and also specifications for a revised location through the Third Division that would be satisfactory both to your Commission and to myself, but on account of the great difficulties encountered I am unable to do so, and will therefore ask that you fix a special meeting within a week to take up the consideration of these plans and specifications, as it is of the utmost importance that we now proceed with this work as rapidly as possible.

"Every deviation from our original location of the line brings up new and often serious difficulties, and to locate a new line that shall be free from objections of one kind or another is an extremely difficult matter. On account of the great portion

of this sewer section being in tunnel it is impossible to make detours around places where there are difficulties to contend with and consequently other solution must be found, all of which must be carefully weighed and considered. The original line is by far the wisest and best line to adopt, but as from a sanitary standpoint greater objections can be raised to this line by the Elizabeth Water Company, which held no lands in this vicinity when the line was first run, a change in the line seems inevitable in order that we may the better overcome objections which may be raised by the Water Company. To fix upon a new location, however, has proved a very serious proposition.

"Yours respectfully,

"ALEXANDER POTTER."

Mr. Potter suggested that the Joint Meeting advertise for bids on the Third Section, inasmuch as the new specifications would be practically the same as those now on file and that he would have the plans prepared in a few days.

Mr. Riker advised that the Joint Meeting could not advertise for bids unless the plans and specifications had been approved and placed on file.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of July 10, 1902.

On roll being called it was found that all the municipalities were represented, with the exception of Milburn and Vailsburg, Mr. Eschenfelder, representing Vailsburg, arriving later.

Mr. Speir moved that the reading of the minutes of the previous meeting be dispensed with and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

"Recommended: That the report of the Committee on Specifications be approved and the recommendations adopted by the Joint Meeting."

The Secretary read the report of the Committee on Specifications as follows:

"The Committee on Specifications, to whom the plans and

specifications of the Third Section were referred, respectfully report:

"That they have carefully examined the contract, specifications and plans of the Third Section, as relocated by the Engineer.

"Your Committee report that the contract is practically the same as that of the First Section and has been approved, as to form, by Counsel.

"That owing to changes in the character of the ground certain clauses have been inserted in the specifications, as in the case of where the sewer line crosses the land of the Elizabethtown Water Company. And further, that the specifications have been changed in regard to the Underdrains and Tunneling, and as to the nature and quality of the Vitrified Brick to be used. With the exception of these changes the specifications are similar to those of the First Section.

"Your Committee respectfully recommends the adoption of the plans, contract and specifications. All of which is respectfully submitted.

"Francis Speir, Jr.,
"E. D. Tuttle,
"C. V. Baumann,
"Committee on Specifications.

"July 10, 1902."

Mr. Glazier moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded and carried.

Mr. Speir moved the adoption of the following resolution:

"Whereas, The Engineer of the Joint Meeting has presented plans and particular specifications for the construction of the Third Section of the Outlet or Trunk Sewer, extending from Union Avenue, in Union Township, to a point in Milburn Avenue in the Township of Milburn.

"Resolved, That said particular specifications presented by the Engineer be approved and forthwith filed in the office of this Joint Meeting, that Thursday, the seventh day of August, nineteen hundred and two, at 8:30 o'clock in the evening, be designated as the time for a meeting of this Joint Body at its usual place of meeting, to receive proposals in writing for doing the work and furnishing materials for the construction of the aforesaid Third Section of said Outlet or Trunk Sewer, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement inserted in the following newspapers published or circulating in the municipalities jointly contracting, namely, The Newark Evening News, The Engineering News, The

Engineering Record, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, at least two weeks before the time herein designated, of the work to be done and the materials to be furnished on the said specifications; that said advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that all proposals will be subject to rejection by the Joint Meeting in accordance with the directions of the statute."

Motion was duly seconded, and on vote being taken was carried.

The report of the Committee on Specifications relative to the bids on the Fourth Section was read as follows:

"The Committee on Specifications, to whom the bids on the Fourth Section were referred, report that they have carefully examined the bids and recommend that the checks of the Harrison Construction Company and of David Peoples, deposited with their bids, be returned to them.

"Your Committee further recommend that the question of awarding the contract for the construction of the Fourth Section be postponed until Thursday, July 24, 1902, and that a special meeting be called for that time to consider this matter.

"All of which is respectfully submitted.

"Francis Speir, Jr.,
"E. D. Tuttle,
"C. V. Baumann,
"Committee on Specifications.

"July 10, 1902."

Mr. Glazier moved that the report be approved and the recommendations concurred in. Motion was duly seconded, and on vote being taken was carried.

Recommendation of the Executive Committee was read as follows:

"Recommended: That the Joint Meeting having failed to agree with Mrs. N. E. Taylor on the price to be paid for the right of way through the Plot designated as Plot No. 73, that Counsel be directed to take action to condemn the right of way through said property."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded and on vote being taken was carried.

"Recommended by the Executive Committee: That James M. Corey be offered the sum of $350 for the right of way through

Plots known as Nos. 76 and 77, and described as follows:

"Beginning at a point in the easterly line of Taylor Avenue about 55 feet northerly from the centre between the main tracks of the Delaware, Lackawanna and Western Railroad—Morris & Essex Division—said point being designated as Station 82-75 on centre line of the Second Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running north 46 degrees, 30 minutes east, parellel to and 55 feet distant northerly from said centre line between the said main tracks of said railroad, a distance of 90 feet, more or less, to a point, said point being designated as Station 83-65 on centre line of said Joint Outlet or Trunk Sewer; thence running north 46 degrees 30 minutes east parallel to the main tracks of the said Delaware, Lackawanna and Western Railroad and 55 feet distant from the centre line between said main tracks, a distance of 265 feet, more or less, to a point, said last-named point being Station 86-20 on centre line of new location and Station 85-93.4 on centre line of old location of said sewer; thence turning and running north 34 degrees 33 minutes east a distance of 587.6 feet, more or less, to a point on said James M. Corey's easterly line, said last-named point being Station 91-81 on centre line of said sewer. Together with the use of an additional strip of land fifteen feet wide adjoining said right of way only during the construction of the sewer. And further that in the event of James M. Corey refusing to sell said right of way through said property for $350, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

The following resolution was recommended by the Executive Committee for adoption:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of Thirty-five Thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer designated as 'X A.'

"Be it further Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of Five Thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the East Branch or branch sewer designated as 'A Q T'.

"And be further Resolved, that the Secretary give notice

to the various municipalities of such assessments and the proportion thereof to be paid by each of the municipalities.

"And Resolved further, That said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the tenth day of July, 1902."

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Grover Bros.	$ 4.00
South Orange Bulletin	25.55
S. Leschziner & Co.	54.16
Sarah M. Davey	17.04
Engineering Record	19.20
Theodore Kettler	67.35
Francis Speir, Jr.	150.00
William E. Glazier	150.00
George C. Hand	150.00
Charles W. Cox	92.50
Wm. B. Adams	142.45
Herman Schlegel	35.00
E. D. Tuttle	150.00
C. V. Baumann	150.00
A. Eschenfelder	150.00
James H. Van Houten	105.00
John Hauck	105.00
T. J. Shea	10,643.24
P. J. McGuire	30.60
Harrison Construction Company	4,195.47
Alex. Potter	556.45
O. H. Felinly	10.00
J. Randolph Woodruff	629.00
Adrian Riker	2,427.25

Monthly report of Engineer on the progress of the work on the sewer was read. On motion the report was received and placed on file.

"New York, July 10, 1902.

"Joint Meeting,

"Newark, N. J.

"Gentlemen:—

"I beg to submit my monthly report on the Joint Trunk Sewer.

"Construction Work.

"First Section—On Mr. Shea's contract the work done during June was fifty per cent. greater than that done during the preceding month and it will be my endeavor to have the contractor make a similar increase in July's work over that of June.

"The contract is now fourteen per cent. completed and about twenty-eight per cent. of the contractor's time has elapsed.

"The bottom of the trench at the foot of Bayway was somewhat softer than we anticipated, requiring the use of more extra brick work and more timber in foundation. The work started at the Pennsylvania Railroad is delayed by the non-completion of a derrick which is being erected for handling material.

"Second Section—The work performed on this section, Harrison Construction Co. contractors, is progressing as rapidly as the exigencies of the case will permit. The work on this section was started on the road dividing the Parcell property, and rock and water in large quantities were encountered on this part of the work, so that an underdrain was necessary to keep the water off the fresh brick work. The space between the underdrain and the sewer was filled partly with stone, partly with brick and partly with concrete. The amount of this material used was 20 yards of brick work, and 40 yards of concrete, approximately, as certified to by the inspector. But as the filling of this cavity was partially made necessary by the contractor's taking out more rock than he was obliged to, I have allowed 10 1-3 yards of brick work, and 22 yards of concrete as extra work.

"The work so far opened upon this section gives a good general idea of the nature of the work that the contractor can expect to encounter in the future.

"I have fixed the sum of twenty-five cents (25c.) per foot for all underdrain which will be of permanent value to the sewer.

"Fifth Section—The contractors on this section. Earle & Dougherty, applied to me on Tuesday to give them lines and grades so that they could begin construction of this work, but as there is no pipe on the ground, or received at Newark or other point for wagon distribution, I have informed the contractors that it is not wise for them to open up ditches until the arrival of the material.

"Alteration of Line.

"During the past month much time has been devoted in an endeavor to secure a line along which the Third Section will be built, where the length of the tunnel will be decreased to a minimum and at the same time secure a line which will be the least objectionable to the Elizabeth Water Company. Plans, profiles and specifications of this line have been presented to the Committee on Specifications and the descriptions of the amended rights of way will be furnished during the present week.

"In the design of the system of sewerage for the Village of South Orange which has been intrusted to me, I find that a change of location of the Joint Trunk Sewer through Vailsburg is essential to afford South Orange its best outlet. The amended location follows the old location up South Orange Avenue to Sanford Street, thence along Sanford Street to Marion Street and up Marion Street to the South Orange line. As this sewer will be built on flatter grade than the line up South Orange Avenue it will be necessary to increase this pipe to 10-inch. The additional length of this line over the adopted location is about 300 feet. I presume it will be necessary for the Joint Meeting to pass a resolution authorizing this change in the plan adopted. The additional cost of this increase in size and length will be $359.10.

"Yours very respectfully,

"Alexander Potter."

Mr. Potter advised that the size of the pipe in the 5th section, where it was 8 inch, be increased to 10 inch, and that the line be relocated in Vailsburg to Sanford and Marion Streets. Mr. Speir moved that in the 5th section where 8 inch sewer pipe is specified, that it be increased to 10 inch. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the location of the joint trunk sewer, in the Borough of Vailsburg, be changed from the intersection of South Orange Avenue and Sanford Street, and that it be relocated in Sanford Street to Marion Avenue and up Marion Avenue to the South Orange Line."

Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that the Secretary be directed to have 150 copies printed of the Contract and Specifications, etc., of the Third Section. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that Theodore W. Hall be appointed Inspector of the 5th section at a salary of $3.50 per day. Motion was duly seconded, and on vote being taken was carried.

Mr. Glazier moved that when the meeting adjourned it would adjourn to meet on Thursday, July 24th, 1902, at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that the Inspectors of the Joint Meet-

ing be supplied with steel tapes. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of July 24, 1902.

In the absence of Mr. Glorieux, Permanent Chairman, the Secretary called the meeting to order.

Mr. Speir moved that Mr. Eschenfelder take the chair. Motion was duly seconded, and on vote being taken was carried.

On roll being called it was found that all the municipalities were represented.

Recommendation of the Executive Committee was read as follows:

"Recommended: That the question of awarding the contract for the construction of the Fourth Section of the Joint Trunk Sewer be postponed until the regular meeting on August 7, 1902."

Mr. Glazier moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Van Houten and Mr. Kettler, Inspectors on the First and Second Sections of the Sewer, reported on the progress of the work.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of August 7, 1902.

On roll being called it was found that all of the municipalities were represented.

On motion the reading of the minutes of the previous meeting was dispensed with.

The Secretary announced that owing to the recent illness of the Engineer he had been unable to find out the time fixed for the completion of the Third Section, and that the specifications had been printed with a blank left for the date of completion.

Mr. Potter said that the time of completion should be September 1st, 1903.

Mr. Eschenfelder moved that the time of completion of the Third Section of the Joint Outlet or Trunk Sewer be fixed as September, 1st, 1903.

Mr. Riker publicly announced that the time of completion of the Third Section was September 1st, 1903, and that it would be so inserted in the specifications and contract, and further that if any of the contractors wished to withdraw their bids they could do so before the bids were opened.

At 8:31 p. m. Mr. Glorieux, Permanent Chairman of the Joint Meeting, announced that the time for presenting bids on the Third Section had expired.

The bids were then publicly opened and read in detail.

Four bids were received in all, from the following contractors, which totalled up as follows:

1.	The Costa Construction Co. of Orange, N. J. ..	$107,019.55
2.	The Harrison Construction Co. of 745 Broad St., Newark, N. J.	126,908.25
3.	B. F. Sweeten & Son, of Camden, N. J.	151,092.30
4.	T. J. Shea, of Quincy, Ill.	177,882.00

Mr. Speir moved that the two lowest bids be referred to the Committee on Specifications for consideration, to report on same at the next Joint Meeting. And further, that the checks of the other bidders be returned to them. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that when the meeting adjourned it would

adjourn to meet in two weeks from to-night at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

"Recommended: The adoption of the following resolution:

"Resolved, By the Joint Meeting of the municipalities constructing with each other a Joint Trunk or Outlet Sewer to tidewater, that the said Joint Meeting deems it necessary and has determined to take and appropriate for the purposes of said improvements the following described lands, real estate and interest therein shown on map or plan on file in the office of the Joint Meeting, showing the relocation of the Joint Outlet Sewer for South Orange, N. J., and adjacent municipalities, prepared by Alexander Potter, Chief Engineer, July, 1902, and entitled, 'Third Section, First Division, West Branch, Union Avenue to Milburn Avenue, belonging to the following named owners:

"Plot No. 29 B, belonging to George Kuback. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet Sewer, and designated as Plot No. 29 B on said map, entitled First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the line dividing the properties of Christopher Edge and George Kuback, said point being designated as Station 62 -|- 33 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer, thence running North 86 degrees 29 minutes West a distance of 868.65 feet, more or less, to a point, said last-named point being Station 71 -|- 01.65 on centre line of said Sewer; thence turning and running South 88 degrees 01 minute West, a distance of 422.85 feet, more or less, to a point on the Easterly side of a public highway, said last-named point being Station 75 -|- 24.5 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plots Nos. 30 B and 32 B, belonging to J. A. and E. M. Burnett. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet Sewer and designated as Plots Nos. 30 B and 32 B, on said map, entitled 'First Division, West Branch, Union Avenue to Milburn Avenue,' and described as follows:

"Plot 30 B. Beginning at a point on the Westerly side of a public highway, said point being designated as Station 75 -|- 86.65 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer, thence running North 55 degrees 51 minutes West a distance of 300.35 feet, more or less, to a point in the line dividing the property of J. A. and E. M. Burnett and

Lucy Kirkland, said point being Station 78 -|- 87 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide on the East or left-hand side of said right of way, and the use of such additional area about the shafts which may be sunk about the tunnel, as may be required, not to exceed sixty feet square around said shafts, only during the construction of the Sewer.

"Plot 32 B. Beginning at a point in the line dividing the property of Lucy Kirkland and J. A. and E. M. Burnett, said point being designated as Station 83 -|- 21 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer, thence running North 55 degrees 51 minutes West a distance of 12.18 feet, more or less, to a point, said last-named point being in the line dividing the properties of J. A. and E. M. Burnett and Martha M. Harrison et al., said point being Station 95 -|- 39 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide on the East or left-hand side of said right of way, and the use of such additional area about the shafts which may be sunk about the tunnel as may be required, not to exceed sixty feet square around said shafts, only during the construction of the Sewer.

"Plot No. 31. Belonging to Lucy Kirkland. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet Sewer, and designated as Plot No. 31 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point on the line dividing the properties of J. A. and E. M. Burnett and Lucy Kirkland, said point being designated as Station 78 -|- 87 on the centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer, thence running North 55 degrees and 51 minutes West, a distance of 434 feet, more or less, to a point in the line dividing the properties of Lucy Kirkland and J. A. and F. M. Burnett, said last-named point being designated as Station 83 -|- 21 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plot No. 33 B, belonging to Martha Harrison, James B. Harrison and Margaret Harrison. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet Sewer, and designated as Plot No. 33 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the line dividing the property of J. A. and E. M. Burnett and Martha Harrison et al., said point

being designated as Station 95 -|- 39 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running North 55 degrees 51 minutes West, a distance of 646 feet, more or less, to a point in the line dividing the property of said Martha Harrison et al. and the Union Township property, said last-named point being designated as Station 101 -|- 85 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide on the East or left-hand side of said right of way, and the use of such additional area about the shafts, which may be sunk about the tunnel, as may be required, not to exceed sixty square feet, around said shafts, only during the construction of the Sewer.

"Plot No. 40 B, belonging to the Union Township School. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet or Trunk Sewer, and designated as Plot No. 40 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the line dividing the property of Martha Harrison et al. and the Union Township School property, said point being designated as Station 101 -| -85 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running North 55 degrees 51 minutes West, a distance of 44 feet, more or less, to a point in the Easterly side of Burnett Avenue, said last-named point being Station 102 -|- 29 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plots Nos. 34 B, 36 B, 38 B, belonging to Frederick Townley. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet or Trunk Sewer, and designated as Plots Nos. 34 B, 36 B, 38 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the Westerly side of Burnett Avenue, said point being designated as Station 102 -|- 60 on the centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer, said point being 54 feet, more or less, Southerly of the South side of a private lane; thence running North 55 degrees 51 minutes West, a distance of 556 feet, more or less, to a point in the line dividing the properties of Frederick Townley and Morris Allen estate, said point being designated as Station 108 -|- 16 on centre line of said Sewer, again continuing in the same direction from a point in the line dividing the properties of said parties, designated as Station 108 -|- 53 on centre line of said Sewer a distance of 557 feet, more or less, to a point

in the line dividing the properties of Frederick Townley and Morris Allen estate, said point being designated as Station 114 -|- 10 on centre line of said Sewer, again continuing in the same direction from a point in the line dividing the properties of said parties, designated as Station 115 -|- 30 on centre line of said Sewer a distance of 170 feet, more or less, to a point designated as Station 117 -|- 00 on centre line of said Sewer, thence turning and running North 22 degrees 39 minutes West, a distance of 1,063 feet, more or less, to a point in the line dividing the property of Frederick Townley and Elizabethtown Water Company, said point being Station 127 -|- 63 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plots Nos. 35 B, 37 B, belonging to Morris Allen estate. The right to build, construct and maintain within a strip of land fifteen feet wide, said Joint Outlet Sewer, and designated as Plots Nos. 35 B, 37 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Plot No. 35 B. Beginning at a point in the line dividing the properties of Frederick Townley and Morris Allen estates, said point being designated as Station 108 -|- 16 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer, thence running North 55 degrees 51 minutes West, a distance of 37 feet, more or less, to a point in the line dividing the properties of Morris Allen estate and Frederick Townley, said last-named point being Station 108 -|- 53 on centre line of said Sewer.

"Plot No. 37 B. Beginning at a point in the line dividing the properties of Frederick Townley and Morris Allen estate, said point being designated as Station 114 -|- 10 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running North 55 degrees 51 minutes West, a distance of 120 feet, more or less, to a point in the line dividing the properties of Morris Allen estate and Frederick Townley, said point being Station 115 -|- 30 on centre line of said Sewer.

"Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plot No. 39 B. Belonging to The Elizabethtown Water Company. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet or Trunk Sewer, and designated as Plot No. 39 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the line dividing the properties of Frederick Townley and The Elizabethtown Water Company, said point being designated as Station 127 -|- 63 on centre line of the

First Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running North 22 degrees 39 minutes West, a distance of 1,552 feet, more or less, to a point in the Southerly line of Springfield Avenue, said point being designated as Station 143 -|- 15 on the centre line of said West Branch of the Joint Outlet or Trunk Sewer.

"Together with the use of an additional strip of land fifteen feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plot No. 41 B, belonging to Mary Jane Smith. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet or Trunk Sewer, and designated as Plot No. 41 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the Northerly side of Springfield Avenue, said point being designated as Station 143 -|- 76 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running North 22 degrees 39 minutes West, a distance of 394 feet, more or less, to a point in the line dividing the properties of Mary Jane Smith and W. C. Whittingham, said point being Station 147 -|- 70 on centre line of said Sewer.

"Together with the use of an additional strip of land fifteen feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plot No. 42 B, belonging to W. C. Whittingham. The right to build, construct and maintain within a strip of land fifteen feet wide, said Joint Outlet Sewer, and designated as Plot No. 42 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the line dividing the properties of Mary Jane Smith and W. C. Whittingham, said point being designated as Station 147 -|- 70 on centre line of the First Division of the West Branch of the Joint Outlet or Trunk Sewer, said point being distant 24 feet, more or less, from the Easterly bank of the Rahway River; thence running North 22 degrees 39 minutes West, a distance of 487.9 feet, more or less, to a point, said last-named point being Station 152 -|- 57.9 on the centre line of said Sewer, said point being also Station 20 -|- 29.3 on the revised location of the centre line of the Milburn-Summit Division of the Joint Outlet or Trunk Sewer.

"Together with the use of an additional strip of land fifteen feet wide adjoining said right of way on the East or left-hand side, only during the construction of the Sewer.

"Plot No. 89 B, belonging to Walton C. Whittingham. The right to build, construct and maintain within a strip of land fifteen feet wide said Joint Outlet or Trunk Sewer, designated as Plot No. 89 B on said map, entitled, First Division, West Branch, Union Avenue to Milburn Avenue, and described as follows:

"Beginning at a point in the Westerly line of Milburn Avenue, said point being designated as Station 5 -|- 76.4 on centre line of the Milburn-Summit Division of the Joint Outlet or Trunk Sewer, said point being distant 23 feet, more or less, from the point where the Southerly line of Ridgewood Road intersects the Westerly line of Milburn Avenue; thence running South 58 degrees 32 minutes West, a distance of 569.8 feet, more or less, to a point, said last-named point being Station 11 -|- 46.2 on centre line of said Sewer; thence turning and running South 52 degrees 43 minutes West, a distance of 833.1 feet, more or less, to a point, said last-named point being Station 20 -|- 93.3 on centre line of said Sewer,; thence turning and running North 74 degrees 52 minutes West, a distance of 546 feet, more or less, said last-named point being Station 25 -|- 75.3 on centre line of said Sewer; thence turning and running South 83 degrees 34 minutes West, a distance of 120.5 feet, more or less, to a point in the line dividing property of said Walton C. Whittingham from property formerly of Mary Jane Smith, said last-named point being Station 26 -|- 95.8 on the centre line of said Sewer.

"Together with the use of an additional strip of land fifteen feet wide adjoining said right of way, only during the construction of the Sewer."

Mr. Cox moved that the resolution be adopted as recommended by the Executive Committee. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That the Joint Meeting pay to Frederick Townley the sum of 35 cents a lineal foot for the right of way through plots designated as Plots Nos. 34 B, 36 B and 38 B. And further, that in the event of Frederick Townley refusing to sell the right of way for 35 cents a lineal foot, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Tuttle moved that the recommendation of the Executive Committee be adopted. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That Mrs. Borcherling be offered 50 cents a lineal foot for the right of way through her property designated as Plot No. 49, and that in the event of her refusing to sell the right of way for said 50 cents a running foot that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

It was moved and seconded that the recommendation of the

Executive Committee be concurred in, and on vote being taken was carried.

"Recommended by the Executive Committee: That J. A. and E. M. Burnett be offered $1.00 a lineal foot for the right of way through their property designated as Plots Nos. 30 B, 32 B, together with the use of an additional strip of land thirty feet wide on the East or left-hand side of said right of way, and the use of such additional area about the shafts, which may be sunk about the tunnel, as may be required by the contractor, said area not to exceed sixty feet square around said shafts, only during the construction of the Sewer. And provided further, that they will also grant the use of the private roads on said property wherever needed by the contractor. And recommended further, that in the event of J. A. and E. M. Burnett refusing to accept one dollar a lineal foot for said right of way, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That Martha Harrison, James B. Harrison and Margaret Harrison be offered one dollar a lineal foot for the right of way through their property, designated as Plot No. 33 B, together with the use of an additional strip of land thirty feet wide on the East or left-hand side adjoining said right of way, and the use of such additional area about the shafts which may be sunk about the tunnel as may be required by the contractor, said area not to exceed sixty feet square around said shafts, only during the construction of the Sewer. And provided further, that they will also grant the use of the private roads on said property wherever needed by the contractor. And recommended further, that in the event of their refusing to sell the right of way for one dollar a lineal foot, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That the Joint Meeting do take the right of way through the land of the estate of William Potter, as relocated by the Engineer of the Joint Meeting and designated as Plot No. 12, centre line of which is described as follows:

"Beginning at a point in the Easterly line of Morris Avenue, said point being designated as Station 62 -|- 14.00 on the centre line of the Second Section of the Joint Outlet or Trunk Sewer; thence running North 42 degrees 36 minutes East, a distance of 60 feet, more or less, to a point, said last-named point being Station 63 -|- 04 on the centre line of said Sewer; thence turning and running North 30 degrees 43 minutes East, a distance of 1,124 feet, more or less, to a point in said estate of William Potter's Northerly line, said last-named point being Station 74 -|- 28 on the centre line of said Sewer. Together with the use of an additional strip of land fifteen feet wide adjoining the above described lands on the East side, to be used only during the construction of the Sewer. And recommended further, that the estate of William Potter be offered $500 for said right of way and that in the event of the estate of William Potter refusing to sell said right of way for $500, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Speir moved that the recommendation of the Executive Committee in regard to the William Potter estate be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That George Kuback be paid $745.50 for the right of way through his property designated as Plot No. 29 B, and that the Joint Meeting guarantee his well for the space of one year from the time the work is begun on his property."

Mr. Eschenfelder moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That Morris Allen estate be paid $56 for the right of way through the estate designated as Plots Nos. 35 B and 37 B."

Mr. Eschenfelder moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee. That the Joint Meeting pay Michael Dorer $30 in addition to the $158 already passed by the Joint Meeting for the right of way through his property."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That the Joint Meeting pay John Ehrhardt $900 for the right of way through Plots designated as Plots Nos. 20 and 21, as relocated by the Engineer."

Mr. Glazier moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That the Joint Meeting pay Ellen Riley $16.50 in addition to the $100 voted paid by the Joint Meeting."

Mr. Glazier moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That the Joint Meeting pay to Thomas Nelson's sons $138 for the right of way through Plot No. 72, as relocated by the Engineer."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay to Lucy Kirtland the sum of $1,000 for the right of way through the plots designated as Plots Nos. 25, 26 and 31 B."

It was moved and seconded that the recommendation be concurred in, and on vote being taken was carried.

"Recommended by the Executive Committee: That James Brown estate be paid $228 for the right of way through plot designated as Plot No. 68."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Bill of the Harrison Construction Co., amounting to $294.50, for loss of use of cable machine and services of Engineer, due to being blocked by private rights of way, was read, and on motion was laid on the table.

The following recommendation of the Executive Committee was read: Recommend the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $50,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer designated as XA. Be it further

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $10,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the East Branch or Branch Sewer designated as A Q T. And be it further

"Resolved, That the Secretary give notice to the various municipalities of such assessments and the proportion thereof to be paid by each of the municipalities. And further

"Resolved, That said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the seventh day of August, 1902."

Mr. Speir moved that the resolution be adopted as recommended by the Executive Committee. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

T. J. Shea	$16,039.41
Earle & Dougherty	1,286.15
The Harrison Construction Co.	7,842.87
William Allen	5.00
The Engineering News Publishing Co.	36.00
John Hauk	94.50
Agents of Century Building	54.16
Theo. Kettler	91.40
James Van Houten	98.00
Herman Schlegel	80.50
The Engineering Record	14.80
Henry Keenan & Son	30.30
William B. Adams	115.15
Francis S. Phraner	450.00
The New Jersey Freie Zeitung	9.00
P. J. McGuire	62.40
The Newark Evening News	7.60
The Sunday Call	7.60
William Rollinson	396.22
P. H. and J. Conlan	211.48
Alexander Potter	943.82

Mr. Potter read his report of the progress of the work on the Sewer, and as to the capability of the Inspectors, etc. On motion report was received and placed on file.

"New York, August 7, 1902.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to submit my report for the month of July in connection with the construction of the Joint Trunk Sewer. I submit herewith estimates of contractors Shea, Harrison Construction Co., and Earle & Dougherty, which are self-explanatory.

"The estimate of T. J. Shea shows that he is proceeding with his work more expeditiously from month to month. He now has work in progress at five different points on his section and the present month bids fair to see even greater progress made.

"Harrison Construction Co. have been considerably delayed during the past month due to the fact of their inability to get on to land where rights of way have not been secured. This contractor struck considerable quicksand on the property of John W. Stiles, making construction work there slow and tedious during the month.

"Earle & Dougherty made a beginning of their work on Section 5, and as their pipe is arriving now there is every possibility of their making a very much better showing during the present month. They were put to work on Sanford Street on account of prospective paving on that street. The work thereon is about completed. The amount of work done on this section has not been satisfactory, which has been principally owing to the fact of their inability to secure pipe from the manufacturers.

"Some question has been raised in regard to the capabilities and experience required in the men appointed as inspectors upon this work. Some of the inspectors appointed upon the work have so far demanded from my assistant engineers a considerable portion of their time, not only in attempting to teach them their duties, but also in watching them to see that they carry out the orders given them as to the performance of their work. While we are willing to spend some time in instructing an inspector as to his duties, it is not the duty of my engineers to watch the employees of the municipalities, and they have not the time to give to such employment, as the nature and capabilities of the men employed as inspectors should be such as have had experience in practical construction work, and who do not require watching to see that their duties are carried out properly. There have been already several instances of dereliction in duty on the part of the inspectors, perhaps due to ignorance in regard to the work before them, disobeying the orders of the engineer, and permitting work unbeknown to the engineer which is not in accordance with the specifications without reporting same to the engineer. These instances cannot of course be permitted to continue, and the inspectors so derelict have been warned that a repetition of the offence will mean their discharge, but I cannot too strongly urge

that only good, reliable and experienced men be appointed to these important positions, men of character who will not require watching; in fact, I would suggest that an examination for fitness and knowledge, or, at least, an appointment on trial only be given each applicant, until such time as he has proved his fitness to the work.

"Respectfully submitted,

"ALEXANDER POTTER."

Question of Inspectors taken up.

Mr. Speir moved that the action of Mr. Eschenfelder, in appointing Mr. Welcher Inspector, be ratified and confirmed, but that the appointment be not considered permanent, and that he be retained only for such time as the Engineer may think necessary. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter reported that he needed another Inspector on the Second Section.

Mr. Eschenfelder moved that another Inspector be appointed on the Second Section. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved that Mr. Van Sant be appointed Inspector on the Second Section, but in the event of his not accepting the position that Charles Deveraux be appointed Inspector. And further, that the Engineer be directed to notify these men when he wanted them to begin work. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Engineer be directed to investigate the charges made against Mr. Welcher as Inspector. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of August 21, 1902.

In the absence of the Permanent Chairman the Secretary called the meeting to order.

Mr. Baumann moved that Mr. Tuttle take the chair. Motion was duly seconded, and on vote being taken was carried.

On roll being called it was found that a majority of the municipalities were represented.

Motion was made that the minutes of the previous meeting be approved as printed.

The Secretary announced that owing to a mistake of the printers the following had been omitted:

"Mr. Speir moved that the question of awarding the contract for the construction of the Fourth Section be postponed until the meeting on August 21, 1902. Motion was duly seconded and carried."

Also the following recommended by the Executive Committee:

"That an acre of land be bought from Mary Jane Smith for $250, said acre to include the right of way for the Sewer, as shown on map entitled, Third Section, First Division of the West Branch, Union Avenue to Milburn Avenue, and further designated as Plot 41 B. It was moved and seconded that the recommendation of the Executive Committee be concurred in, and on vote being taken was carried."

Mr. Speir moved that the minutes of the previous meeting be approved as printed, with the corrections noted by the Secretary. Motion was duly seconded, and on vote being taken was carried.

Report of the Committee on Specifications, which was recommended for approval by the Executive Committee, was read as follows:

"The Committee on Specifications, to whom the bids for the construction of the Third Section were referred, respectfully report:

"They have carefully examined the bids with the Engineer and have made inquiries as to the standing of the contractors.

"Your Committee are satisfied that the Costa Construction Company is competent both financially and as contractors to do the work, and your Committee recommend that the contract for

the construction of the Third Section be awarded to The Costa Construction Company, the lowest bidders, for the sum of $107,019.55.

"All of which is respectfully submitted.

"Francis Speir, Jr.,
"C. V. Baumann,
"E. D. Tuttle.

"Dated, August 21, 1902."

Mr. Speir moved that report of the Committee on Specifications be approved and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved the adoption of the following resolution:

"Resolved, That the proposal of The Costa Construction Company of Orange, N. J., for the construction of the Third Section, they being the lowest responsible bidders, be accepted; that the proposal be reduced to a contract in writing and a satisfactory bond in the penal sum of fifty-four thousand dollars, to be approved by the Joint Meeting, shall be required from and given by them for the faithful performance of their contract.

"Resolved further, That The Costa Construction Company, having presented The American Surety Company as surety on the bond, that the same be approved and the officers of the Joint Meeting be authorized to execute the contract upon the presentation of the bond with the said surety, upon the approval of the contract and bond, as to form, by Counsel."

Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

"Recommended: That the five thousand dollars of The Harrison Construction Company, deposited with their bid on the Third Section, be returned to them."

Mr. Cox moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Engineer be directed to lay out a new course for the Sewer in the Milburn and Summit Division, so as to avoid the necessity of obtaining private rights of way in Springfield Township as much as possible.

Mr. Eschenfelder moved that the recommendation be con-

curred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That action on the Fourth Section be postponed until the next meeting."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That George Hayward be appointed Inspector on the Fifth Section at the usual salary."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay to Noah W. Parcell the sum of $1,689, as awarded by the Commission, for the right of way through Plots 3, 4 and 5."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay to Dennis Long the sum of $676.47 for the right of way through Plot No. 22; provided, he grant the use of an additional strip of land thirty feet wide adjoining said right of way, during the construction of the Sewer."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay to William N. Elberson the sum of $300 for the right of way through Plot No. 17."

Mr. Baumann moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay J. A. & E. M. Burnett the sum of $1,518 for the right of way through Plots Nos. 30 B and 32 B, and further that the Joint Meeting pay for the cost of the material to fence off the right of way, said material not to exceed the sum of $200. And recommended further: That the Joint Meeting guarantee the well for the space of one year from the time work is begun on said premises."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay George Kuback the sum of $755.52 for the right of way through Plot 29 B, and that the Joint Meeting guarantee his well for the space of one year from the time work is completed on his property, and that in the event of the well becoming dry that the Joint Meeting construct a new well. And further: That if the Sewer destroys the spring on said premises that the Joint Meeting pay to said George Kuback the sum of $300."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That William Rollinson be paid back the $290 advanced by him on the Charles P. Hedden right of way."

Mr. Cox moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir read a communication from Mayor Ryan, of Elizabeth, which he had received, to the effect that Mr. Shea was not replacing the dirt properly on Bayway, as agreed upon in the contract. Mr. Speir read his reply to the communication, and stated that he had referred the matter to Mr. Potter, who had stated that the work had been completed to the satisfaction of Mayor Ryan.

On motion the communication was received and placed on file.

Mr. Potter submitted a report on the condition of the Sewer in the Fifth Section where the pipe was reported to have been improperly laid, and on the charges made against the Inspector on that section of the work.

"New York, Aug. 21, 1902.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to report upon the examination made by me of the condition of the pipe which was reported by the Chairman to have been improperly laid, on the Fifth Section of the work.

"I made a personal examination of the interior of the sewer in question with my assistant engineer and found that several pipes which were badly warped had been used in the sewer, making it impossible for the spigot of one pipe to be forced com-

pletely home into the bell of the next adjoining pipe. I ordered twelve lengths of pipe taken out and relaid.

"The condition of the sewer at this point as found would not materially affect the sewer, because at this point there was an impossibility of infiltration of ground water to the sewer, but if this carelessness in the laying of the pipe was countenanced at the beginning of the work it must have led to further trouble and careless construction as the work proceeded.

"As this pipe was laid on the second day that the inspector took charge of the work no blame can be attached to him, but a repetition of this condition after the inspector has been thoroughly broken in, would be ample reason for his instant dismissal as inspector.

"The foreman who had charge of this work, and who countenanced the use of the warped pipe, is not now in the employ of the contractor.

"Yours very respectfully,

"ALEXANDER POTTER."

"New York, August 21, 1902.

"Joint Meeting,

"Newark, N. J.

"Gentlemen:—

"I beg to report to you in regard to the meeting which I was asked to attend at Elizabeth on August 19th, concerning the condition of the streets in the City of Elizabeth.

"The principal cause for complaint lay in the fact that Mr. Shea did not back-fill the trench as rapidly as he was laying the sewer, his excuse being that the continued rains so saturated the excavated material that it put him to considerable more expense in backfilling it from day to day than leaving the backfilling uncompleted until after the rains should let up. I might state that before this meeting I had given positive orders to refill this street and Mr. Shea had begun the work of relieving the unsatisfactory condition of Bayway.

"There were three or four minor complaints in regard to filling up some holes at certain sections of the street, which Mr. Shea has already attended to.

"Another cause for complaint lay in the fact that along Bayway, which is impassible after every rain, a cinder path has been built by the employes of the factory at the lower end of the street, and the construction of the sewer has, to a certain extent, interfered with the use of this bicycle path. The contractor is putting the cinder path back and will leave it in a better condition than when he found it.

"Respectfully submitted,

"ALEXANDER POTTER."

Mr. Eschenfelder moved that the report be received and

placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that on the approval of the bond and execution of the contract with The Costa Construction Company that a warrant be drawn on the Treasurer in the sum of $5,000, in payment of the money deposited with their bid. Motion was duly seconded, and on vote being taken was carried.
carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of September 4, 1902.

On roll being called it was found that all the municipalities were represented.

Mr. Speir moved that the reading of the minutes of the previous meetings be dispensed with, and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee were read as follows:

"Recommended: That the bid of Earle & Dougherty, for the construction of the Fourth Section, be rejected, and that the matter be re-advertised."

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

Recommended, by the Executive Committee, the adoption of the following resolution:

"Resolved, That Thursday, the twenty-fifth day of September, nineteen hundred and two, at eight-thirty o'clock in the evening be hereby designated as the time for a meeting of this Joint Body at its usual place of meeting, to receive proposals in writing for doing the work and furnishing the materials for the construction of the Fourth Section of the Trunk Sewer from Vauxhall Road through South Orange Township and Village to the West Orange line, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement inserted

in the following newspapers published or circulating in the municipalities jointly contracting, namely, The Newark Evening News, The Engineering News, The Engineering Record, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, at least two weeks before the time herein designated of the work to be done and the materials to be furnished on said specifications, that said advertisement shall state that the proposals will be publicly opened by the Chairman of the Joint Meeting at the time above designated during a session of the Joint Meeting, and that any and all proposals will be subject to rejection by the Joint Meeting, in accordance with the direction of the statute."

Mr. Glazier moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that the same form of advertisement for bids on the Fourth Section be inserted in the newspapers as was used in the former advertisement, with the necessary changes in the date for opening of the bids. Motion was duly seconded, and on vote being taken was carried.

"Recommended by the Executive Committee: That the $5,000 of Earle & Dougherty deposited with their bid on the Fourth Section be returned to them, together with interest, as agreed on in the specifications."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay Charlotte Carter $900 for a fifteen-foot permanent right of way through her property and the use of an additional strip thirty feet wide, adjoining said right of way, during the construction of the Sewer."

It was moved and seconded that the recommendation be concurred in, and on vote being taken was carried.

"Recommended: That the Joint Meeting pay James O. Stiles $1.35 a lineal foot for a fifteen-foot permanent right of way through his property, and the use of an additional strip thirty feet wide, adjoining said right of way, during the construction of the Sewer. And further, that said consideration cover all claims for damages for trespassing and other acts of the contractor while working on John Stiles's property."

It was moved and seconded that the recommendation be concurred in, and on vote being taken was carried.

"Recommended: That the Costa Construction Company be granted an extension of one week within which to file their bond."

It was moved and seconded that the recommendation be concurred in, and on vote being taken was carried.

"Recommended: That in the event of the Costa Construction Company being unable to furnish a bond with the American Surety Company as surety, that the officers of the Joint Meeting be authorized to execute the contract with the Costa Construction Company for the construction of the Third Section, provided the Costa Construction Company furnish a bond that is satisfactory to Counsel, and after same has been approved by him."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Communication from W. A. Manda was read, asking that he be shown where the Sewer would run through his property, and that he be advised as to the time when work would be begun.

It was moved that the matter be referred to Mr. Potter to take up with Mr. Manda. Motion was duly seconded, and on vote being taken was carried.

The following resolution recommended by the Executive Committee for adoption was read:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $45,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer designated as XA.

"Be it further Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $15,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the East Branch or Branch Sewer, designated as AQT.

"Be it further Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $5,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the First Division, West Branch, of the Sewer, designated as AB.

"Be it further Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $5,000, which shall be assessed upon

the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Second and Third Divisions of the Sewer, designated as BKL.

"And it is further Resolved, That the Secretary give notice to the various municipalities of such assessments and the proportion thereof to be paid by each of the municipalities.

"And Resolved further, That said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the fourth day of September, 1902."

Mr. Baumann moved that the resolution be adopted as recommended by the Executive Committee. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter submitted his monthly report on the progress of the work.

"New York, September 4, 1902.

Joint Meeting,

"Newark, N. J.

"Gentlemen:—

"I beg to submit my report for the month of August and present you estimates for the three contracts already awarded, namely, Sections 1, 2 and 5. The amount of work done during the month on the three contracts amounts to $42,774.81, the amount due to T. J. Shea being $16,606.92; to Harrison Construction Co., $10,207.74; to Earle & Dougherty, $9,543.19.

"I present with this report a map showing the amount of completed work on the Joint Trunk Sewer. This map also shows the location of the different sections. Hereafter, I will present the Board with this progress map each month, which will show at a glance the amount of work done during the last month, and also the total amount done to date.

"The amount of money to be expended during the coming month will probably be twenty per cent. greater than during the month of August, as the estimate on Section 1 has been kept down on account of our compelling the contractor to put a large percentage of his men on backfilling his trenches.

"We are discovering that the amount of rock to be paid for will exceed the estimate, because in many instances the borings did not indicate the true nature of the ground. In some cases the borings show that rock would not be struck within six feet of the surface of the ground, whereas we find it practically at the surface. It is impossible to state at this time the exact amount of increase in the actual amount of rock that will be encountered.

"I beg to report upon the change in the line of the Summit-Milburn Division to keep the sewer entirely within our own territory. I present a plan showing the old location and also the new

location of this line. Upon examination it was impossible to follow the shortest line, which is along the creek dividing the two townships, because the greater part of this line has within the last year been covered with wells of Mr. Stewart Hartshorn's water supply, and Mr. Hartshorn does not assent to our crossing this property, although he has given his consent to our crossing below, or on my original line. I did not have a conference with Mr. Hartshorn, as he was away, but with his superintendent. Several other lines were proposed which more nearly approached a straight line, but the owners of the property refuse absolutely to permit the construction of the sewer over their land. The only possible location, other than the one originally designed, is to begin on Main Street in the town of Millburn, where the sewer crosses the Fandango property at the corner of Willow Street, thence along Willow Street to its intersection with Spring Street, produced; thence along Spring Street to Rector Street, along Rector Street to Blaine Street, along Blaine Street to Millburn Avenue, along Millburn Avenue to Morris Avenue. The line thus described is 1,335 feet longer than the original line. As the sewer on Milburn Avenue will be deep, the additional cost of construction of this line will be from $4,500 to $5,000 over the cost of the original line, depending upon the amount of rock excavation that will be encountered in Millburn Avenue.

"The grade obtained on this ilne is such as will permit the use of 30-inch pipe to take care of all sewage for Summit, Morristown and the other towns along the line. If Morristown is not provided for, a 24-inch pipe can be used, at an additional cost over the original line of about $3,000.

"Respectfully submitted,

"Alexander Potter."

Mr. Speir moved that the report be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

"New York, September 4, 1902.

"Joint Meeting,

"Newark, N. J.

"Gentlemen:—

"I submit herewith a plan of contemplated change in location through the property of G. & J. Dorer and Nicholas Weber, on the Fifth Section in the Town of Irvington.

"On the sketch submitted herewith the right of way has been secured along the line ABCE, through the Dorer tract. The portion ABCF belonging to Weber has not yet been secured. The Weber tract has been sub-divided since our plan was made, with a bend in the street at the point E, and if the original location is adhered to a number of lots in this tract of Weber's will be affected.

"I conferred with Mr. Dorer in regard to the contemplated change and he has agreed to accept the altered line through his property, or along the line ABCD.

"As the sewer construction has now reached the point C, it will be necessary to take immediate action on this change of location.

"Respectfully submitted,

"ALEXANDER POTTER."

Mr. Potter submitted plan, showing the relocation of the Sewer in the Millburn-Summit Division, the relocation being made for the purpose of avoiding Springfield Township.

Mr. Glazier moved that the proposed relocation of the line on the Millburn-Summit Division be referred to Mr. Cox and Mr. Hand. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter submitted a plan, showing a proposed relocation of the Sewer through the properties of M. and J. Dorer and Nicolas Webber. Mr. Potter stated that he had made this change in the line so as to follow the line of a proposed road through Nicolas Webber's property, and that both Mr. Webber and the Messrs. Dorer were agreeable to the new line.

Mr. Eschenfelder moved that the line of the Sewer be relocated through Nicolas Webber's and M. and J. Dorer's properties as laid out by the Engineer, provided that Mr. Webber and Messrs. M. and J. Dorer would deed the right of way for one dollar and for the further consideration of having the former right of way released to them, and provided further that Counsel should rule that the Joint Meeting had the power, under the statute, to change the line and release the former right of way. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Secretary be directed to get the advice of Counsel as to the legality of the proposed change in line of the Sewer through the properties of Messrs. Webber and Dorer. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

J. H. Van Houten	$	73.50
John Hauck		73.50
Herman Schlegel		73.50
Charles E. Derivaux		49.00

Wm. Welcher	91.00
Theo. W. Hall	108.50
Alexander Potter	1,363.41
Earle & Dougherty	9,543.19
Harrison Construction Company	10,207.74
Thomas J. Shea	16,606.92
William Rollinson	31.86
Fidelity Trust Company	1,395.00
Theodore Kettler	91.00
Henry Keenan & Son	25.50
South Orange Bulletin	46.85
Grover Brothers	46.75
Wm. B. Adams	122.75
S. Leschziner	54.16
Roe & Conover	31.20

It was moved that the meeting adjourn to meet September 25, 1902.

Mr. Speir moved that the motion to adjourn be reconsidered. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved that the relocation of the Sewer on the Millburn and Summit Division, submitted by the Engineer, be accepted. Mr. Hand seconded the motion, and on vote being taken was carried.

Mr. Spier moved that the meeting adjourn to meet on September 25th, 1902, at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of September 25, 1902.

On roll being called it was found that all the municipalities were represented, with the exception of Millburn, Mr. Cox, representing Millburn, arriving a few minutes later.

Mr. Glazier moved that the reading of the minutes of the previous meeting be dispensed with and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox offered the following resolution for adoption:

"Resolved, That the time for the completion of the work under the contract for the construction of the Third Section of the Sewer, heretofore awarded to the Costa Construction Company, be extended to October 15, 1903, and that the Costa Construction Co. having presented the bond of the Fidelity & Deposit Company of Maryland as surety, that the same be approved subject to the approval thereof as to form by Counsel, and that the President and Secretary be directed to execute the contract with the Costa Construction Company when approved as to form by Counsel."

Mr. Eschenfelder moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Hand offered the following resolution for adoption:

"Resolved, That application be made to the Board of Chosen Freeholders of the County of Essex, or its committee on roads for permission to open Springfield Avenue for the purpose of laying the sewer on the line eight feet south of the south rail of the street car line in said avenue, from Lincoln Place to Smith Street, and from Washington Avenue to Grove Street, the sewer to be eighteen inches in diameter in the first section above named and ten inches in diameter in the second section above named, and that the Secretary be authorized to deposit the sum of one hundred and twenty-five dollars as security to the Board of Freeholders for the restoration of the avenue to its proper condition, in accordance with their rules, and that a warrant be authorized to be executed for said sum of one hundred and twenty-five dollars."

Mr. Eschenfelder moved that the resolution be adopted. Motion was seconded by Mr. Brewer and on vote being taken was carried.

Mr. Cox offered the following resolution for adoption:

"Resolved, That the Treasurer be authorized to pay Thomas

Gray the sum of three hundred dollars, and to Edward Day the sum of two hundred and fifty dollars, being tenants in possession on right of way through Lucy Kirkland's land, and to Frank Bolles, fifty dollars, tenant on the Harrison right of way, and that warrants be executed for said sums."

Mr. Glazier moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

The following resolution was offered for adoption:

"Resolved, That payment of one hundred dollars to Mrs. Mary Borcherling for trees on the right of way through her property be hereby ratified and approved."

Mr. Hand moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

The following resolution was offered for adoption:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through the plot designated as Plot No. 12, belonging to the estate of William Potter, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Glazier moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

The following resolution was offered for adoption:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested on the price to be paid for the right of way through the plots designated as Plots Nos. 34-B, 36-B and 38-B, belonging to Mary A. Townley and Frederick Townley, her husband, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Brewer moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Cox offered the following resolution for adoption:

"Be it Resolved, By the Joint Meeting of the municipalities constructing with each other a Joint Trunk or Outlet Sewer to tide-water, that the said Joint Meeting deems it necessary and has determined to take and appropriate for the purposes of said improvement the following described lands, real estate and interest thereon, shown on map on file in the office of the Joint Meeting, showing the location of the Joint Outlet Sewer

for South Orange, N. J., and adjacent municipalities, prepared by Alexander Potter, Chief Engineer, and entitled South Orange Division, Millburn Avenue to South Orange Avenue, belonging to the following-named owners:

"Plot No. 73, belonging to Mrs. N. E. Taylor, the right to build, construct and maintain within a strip of land fifteen feet wide, said Joint Outlet Sewer and designated as Plot No. 73 on said map, entitled, South Orange Division, Millburn Avenue to South Orange Avenue, and described as follows:

"Beginning at a point in the line dividing the property of Thomas Nelson Sons from the property of Mrs. N. E. Taylor; said point being designated as Station 47 -|- 62, on the center line o the Second Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running north 34 degrees 18 minutes east, a distance of 140 feet, more or less, to a point in the southerly line of Baker Street; said last named point being Station 49 -|- 02 on center line of said sewer. Together with the use of an additional strip of land 30 feet wide, adjoining said right of way on the west, only during the construction of the sewer.

"Plot No. 69, belonging to the estate of George D. Arthur, the right to build, construct and maintain within a strip of land fifteen feet wide, said Joint Outlet Sewer, and designated as Plot No. 69 on said map, entitled, South Orange Division, Millburn Avenue to South Orange Avenue, and described as follows:

"Beginning at a point in the line dividing the property of the estate of James Brown, from the property of the estate of George D. Arthur; said point being designated as Station 23 -|- 26.80 on the center line of the Second Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running north 28 degrees 34 minutes east, a distance of 583.2 feet, more or less, to a point in the line dividing the property of said estate of George D. Arthur from the property of Hubert L. Pierson; said last-named point being Station 29 -|- 10 on center line of said sewer. Together with the use of an additional strip of land 30 feet wide, adjoining said right of way on the west, only during the construction of the sewer."

Mr. Eschenfelder moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Communication from Mr. Potter was read, relating to the Manda right of way, which was referred to him at the last meeting. Mr. Potter submitted a letter from Mr. Manda stating that he was unwilling to concede an extension of time and insisted on holding to the terms of the agreement.

Mr. Cox moved that the communication be received and placed on file. Motion was duly seconded and on vote being taken was carried.

Secretary reported that Messrs. Webber and Dorer had been interviewed in regard to the proposed change in the line through their properties and that while Mr. Webber was agreeable to the change Mr. Dorer was not, his contention being that the sewer pipe was not underground. Mr. Potter on being called on stated that he would give the matter his attention and have the pipe covered.

Communication from the Engineer was read, advising that bids be advertised for on the Sixth Section and that the advertisement call for alternate bids. The idea being to provide for Morristown joining in the Joint Trunk Sewer and to avoid delay in the event of their failing to do so.

"New York, September 25, 1902.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I present herewith the amended form of advertisement for the letting of the work on the Millburn-Summit Division so that bids may be received from contractors for the construction of the sewer for Summit and Millburn alone and also for the construction of a sewer large enough to admit of sewerage from the cities of Morristown and Madison, should they desire to join in this enterprise, the specifications for which have been presented and have been passed upon by the Specification Committee and need no revision except as to the quantities of work to be done, necessitated by the change in the line which was adopted at the last meeting of your Commission. I refer to the change made in order to prevent the sewer being constructed outside the territory of the Joint Municipalities.

"In advertising in this way we are enabled to see exactly the extra cost for taking in Morristown and also advance the construction work materially.

"I had a conference with one of the members of the Morristown Board and he is of the opinion that Morristown will, in less than a month, be able to give a decided answer as to whether they will be ready to come into the joint enterprise or not.

"I would suggest that the bids for this section be received on Thursday, October 16th, which will allow ample time for the proper advertisement of this work.

"Yours very respectfully,
"Alexander Potter."

Mr. Tuttle moved that the communication be received and placed on file, and that further discussion be postponed until after

the bids on the Fourth Section were disposed of. Motion was duly seconded and on vote being taken was carried.

Mr. Glorieux announced that the time for presenting bids on the Fourth Section had arrived.

Mr. Cox moved that the time of completion of the Fourth Section be fixed as one year from the time of signing the contract. Motion was duly seconded and on vote being taken was carried.

Mr. Glorieux publicly announced that the time of completion of the Fourth Section would be one year from the time of the signing of the contract.

At 8:31 Permanent Chairman announced that the time for presenting bids on the Fourth Section had expired. The bids were publicly opened by the Permanent Chairman and read in detail. Eight bids were received in all from the following contractors, with totals as hereinafter set forth:

1.	James P. Hall, foot of Henderson Street, Jersey City, N. J.	$47,553.50
2.	David Peoples, of 2649 Thompson Street, Philadelphia, Pa.	48,586.00
3.	John F. Shanley, of 17 Washington Street, Newark, N. J.	49,957.00
4.	James Conway, of 491 Central Avenue, Newark, N. J.	50,170.75
5.	Earle & Dougherty, of 181 Main Street, Hackensack, N. J.	50,371.50
6.	Thomas J. Shea, of Quincy, Ill.	51,003.00
7.	Ludwig Batt, of South Orange	53,804.50
8.	M. & T. Connolly Contracting Co., of 238 17th Street, Jersey City, N. J.	65,301.75

Mr. Glazier moved that the three lowest bids be referred to the Committee on Specifications for consideration, to report on same at the next Joint Meeting. And further, that the checks of the other bidders be returned to them. Motion was duly seconded and on vote being taken was carried.

Sixth Section taken up.

Mr. Cox offered the following resolution for adoption:

"Whereas, The Engineer of the Joint Meeting has presented plans and specifications in the alternative for the construction of the Sixth Section of the Outlet or Trunk Sewer;

"Resolved, That said particular plans and specifications presented by the Engineer be forthwith filed in the office of the Joint Meeting; that Thursday, the 16th day of October, 1902, at half-past eight in the evening, be hereby designated as the time for a meeting of this Joint Body, at the usual place of meeting, to receive proposals in writing, in the alternative for doing the work and furnishing the materials for the construction of the aforesaid Sixth Section of the Joint Trunk Sewer, extending from a point in Millburn Avenue, in the Township of Millburn, to a point in the dividing line between the Township of Millburn and the City of Summit, and that the Chairman and Secretary of the Joint Meeting be directed to give notice by advertisement inserted in the following newspapers published or circulating in the municipalities jointly contracting, to wit: The Newark Evening News, The Engineering News, The Engineering Record, The Sunday Call, The Orange Journal, The New Jersey Freie Zeitung, at least two weeks before the time herein designated of the work to be done and the materials to be furnished under said specifications; that said advertisement shall state that the proposals shall be publicly opened by the Chairman of the Joint Meeting at the time above designated, during a session of the Joint Meeting, and that any and all proposals will be subject to rejection by the Joint Meeting in accordance with the direction of the statute."

Mr. Eschenfelder moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Brewer moved that when the meeting adjourned it would adjourn to meet one week from to-night.

Mr. Baumann suggested that the meeting adjourn to meet one week from Friday, September 26, 1902.

Mr. Brewer said he would so amend his motion. Motion was duly seconded and on vote being taken motion as amended was carried.

Mr. Riker advised that it would save an unnecessary delay if the Committee on Specifications notified the successful bidder to bring his bond with him to the next meeting and have the surety formally approved.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Riker & Riker	$223.00
Keenan & Son	38.50
The Sunday Call	8.20
Newark Evening News	7.40
Wm. Allen	25.00

The Engineering Record	19.60
Noonan Bros.	6.50
P. J. McGuire	110.00

Mr. Eschenfelder moved that the meeting adjourn. Motion was duly seconded and carried.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of October 3, 1902.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Speir moved that the reading of the minutes be dispensed with and that they be approved as printed. Resolution was duly seconded and carried.

Report of the Committee on Specifications was read as follows:

The Committee to whom the bids for the construction of the Fourth Section were referred respectfully report:

"The various testimonials have been submitted to the Committee endorsing Mr. Hall, the lowest bidder, not only personally, but as an efficient contractor.

"Mr. Garwood Ferris, Chief Engineer of the new water supply for Jersey City, and Mr. C. A. Van Keuren, Chief Engineer of the Board of Street and Water Commissioners for Jersey City, under date of September 27, 1902, endorse Mr. Hall as being able to complete any contract into which he may enter.

"In Mr. Potter's report to the Committee he states as to Mr. Hall's financial standing that he was advised by the Second National Bank of Jersey City, and also by material men, that Mr. Hall was amply able to carry out the work even though the actual cost should be in excess of the contract price.

"After giving the matter careful consideration your Committee recommend that the contract for the construction of the Fourth Section be awarded to James P. Hall, the lowest bidder.

"All of which is respectfully submitted.

"Dated, October 3, 1902.

"FRANCIS SPEIR, JR.,
"E. D. TUTTLE."

Mr. Cox moved that the report be received and placed on file. Mr. Speir seconded the motion and on vote being taken motion was carried.

Mr. Speir offered the following resolution for adoption:

"Resolved, That the proposal of James P. Hall, of Jersey City, N. J., he being the lowest responsible bidder, be accepted; that the proposal be reduced to a contract in writing and a satisfactory bond in the penal sum of $24,000, to be approved by the Joint Meeting, shall be required from and given by him for the faithful performance of his contract."

Mr. Eschenfelder moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Hall submitted a bond with the City Trust, Safe Deposit and Surety Co., of Philadelphia, as surety.

Mr. Speir offered the following resolution for adoption:

"Resolved, That James P. Hall, having presented The City Trust, Safe Deposit and Surety Co., of Philadelphia, Pa., as surety on the bond, that the same be approved and the officers of the Joint Meeting be authorized to execute the contract upon presentation of the bond with said surety, and upon the approval of the contract and bond as to form by Counsel."

Mr. Glazier moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Speir moved that the Treasurer be authorized to return to David Peoples and John F. Shanley their certified checks for $5,000 which had been presented with their bids. Motion was duly seconded and on vote being taken was carried.

Mr. Eschenfelder moved that the certified check for $5,000 presented by James P. Hall with his bid be returned to him on the execution of the contract. Motion was duly seconded and on vote being taken was carried.

Communication from Mr. Potter was read relative to a request from Mayor Ryan, of Elizabeth, that they be allowed to connect and build catch basins along Bayway from the Sound to Woodbridge Avenue.

"October 2, 1902.

"Joint Meeting,
"142 Market St.,
"Newark, N. J.

"Gentlemen:—

"I am in receipt of a letter from Mayor Ryan of Elizabeth, requesting permission to connect and build catch basins along the line of Bayway from the Sound up to Woodbridge Avenue, where the sewer was made large enough for their requirements for storm water drainage.

"One or two of these catch basins are to be constructed immediately. I can see no reason why this request should not be granted. The consent of the Joint Meeting is, however, required before they can take any such action.

"Yours very respectfully,

"ALEXANDER POTTER."

Mr. Speir offered the following resolution for adoption:

"Resolved, That the City of Elizazeth be permitted to immediately connect a catch basin to be by them constructed, at their expense, on the south side of Bayway near Princeton Avenue to the Joint Trunk Sewer. The connection to the sewer to be made under the supervision of the Engineer for the Joint Meeting and subject to the approval of Counsel of the Joint Meeting."

Mr. Cox moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Theodore Kettler	$45.50
James H. Van Houten	91.00
Wm. Welcher	91.00
Chas. E. Derivaux	91.00
Theodore W. Hall	91.00
Geo. W. Hayward	87.50
John Hauk	91.00
Herman Schlegel	91.00
Hahne & Co.	6.82
S. Leschziner & Co.	54.16
The Engineering News Publishing Co.	21.40

Mr. Eschenfelder moved that Mr. Hand be appointed inspector on the Third Section, upon notice from the Engineer when work is begun on that section. Motion was duly seconded and on vote being taken was carried.

Questions of the distances between and the number of Y branches to be inserted in the Fifth Section were discussed.

Mr. Tuttle said he would bring the matter up before the Town Council of Irvington and have a formal recommendation from that body at the next Joint Meeting.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of October 9, 1902.

In the absence of the Permanent Chairman the Secretary called the meeting to order.

Mr. Speir moved that Mr. Eschenfelder take the chair. Motion was duly seconded and carried.

On roll being called it was found that a majority of the municipalities were represented.

On motion the reading of the minutes of the previous meeting was dispensed with.

The following resolutions, which were recommended by the Executive Committee to the Joint Meeting for adoption, were read as follows:

"Resolved, That the Joint Meeting having failed to agree with Mrs. N. E. Taylor on the price to be paid for the right of way through her property, designated as Plot No. 73, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Glazier moved that the resolution be adopted as recommended by the Executive Committee. Motion was duly seconded and on vote being taken was carried.

Mr. Glazier offered the following resolution:

"Resolved, That the Treasurer of the Joint Meeting be authorized to pay George Kuback, tenant in possession on the right of way through Lucy Kirkland's land, the sum of one hundred dollars for the right of way through said property and damages to crop."

Mr. Speir moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

"Resolved, That the payment to Phoebe Bennedict of the sum of ten dollars for the release to the Joint Meeting of the right of way through property of Christopher Edge be ratified and approved."

Mr. Cox moved that the resolution be adopted as recommended by the Executive Committee. Resolution was duly seconded and on vote being taken was carried.

Mr. Speir offered the following resolution for adoption:

"Be it Resolved, By the Joint Meeting of the Municipalities

constructing with each other a Joint Trunk or Outlet Sewer to tide water, that the said Joint Meeting deems it necessary and has determined to take and appropriate for the purposes of said improvement the following described lands, real estate and interest therein, shown on maps on file in the office of the Joint Meeting, showing the location of the Joint Outlet Sewer for South Orange, N. J., and adjacent municipalities, prepared by Alexander Potter, Chief Engineer, and entitled South Orange Division, Millburn Avenue to South Orange Avenue, Millburn and Summit Division, Millburn Avenue to Summit Line, belonging to the following named owners:

"Plot No. 93, belonging to Anna L. Henderson, the right to build, construct and maintain within a strip of land 15 feet wide on said Joint Outlet Sewer and designated as Plot No. 93 on said map, entitled, Millburn and Summit Division, Millburn Avenue to Summit Line, and described as follows:

"Beginning at a point in the line dividing the property of Walton C. Whittingham from property of Anna L. Henderson, said last-named point being designated as Station 46 plus 26.9 on the center line of the Millburn-Summit Division of the Joint Outlet or Trunk Sewer; thence running south 62 degrees 38 minutes west, a distance of 196.6 feet, more or less, to a point, said last named point being Station 48 plus 23.50 on the center line of said sewer; thence turning and running south 89 degrees 10 minutes west, a distance of 516.5 feet, more or less, to a point, said last named point being Station 53 plus 40 on center line of said sewer; thence turning and running north 63 degrees 0 minutes west a distance of 318 feet, more or less, to a point in the easterly line of Main Street in the Township of Millburn, said last named point being on the center line of Willow Street, extending and being Station 56 plus 58 on the center line of said sewer; together with the use of an additional strip 30 feet wide adjoining said right of way on the south, only during the construction of the sewer.

"Plot 68, belonging to James Brown estate, the right to build, construct and maintain within a strip of land fifteen feet wide on said Joint Outlet Sewer and designated as Plot 68 on said map, entitled, South Orange Division, Millburn Avenue to South Orange Avenue, and described as follows:

"Beginning at a point in the line dividing the property of estate of Luke B. Riley from the property of James Brown's estate, said point being designated as Station 16 plus 75.5 on the center line of the Second Division of the West Branch of the Joint Outlet or Trunk Sewer; thence running north seventy-three degrees thirty-two minutes east, a distance of six hundred and one and three-tenths (601.3) feet, more or less, to a point, said point being Station 22 plus 76.80 on center line of said sewer; thence turning and running north sixty-eight degrees thirty-four

minutes east, a distance of fifty feet, more or less, to a point in the line dividing the property of said James Brown estate from the property of Frank D. Arthur, said last named point being Station 23 plus 26.80 on center line of said sewer. Together with the use of an additional strip of land 30 feet wide, adjoining said right of way on the east, only during the construction of the sewer."

Mr. Glazier moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Recommended by the Executive Committee that the proposed contract with the New York and New Jersey Telephone Co., submitted by the Secretary, be approved and that he be authorized to execute same for the Joint Meeting. Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded and carried.

Report of the Engineer on the progress of the work was read.

"New York, October 9, 1902.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg leave to present my report for the month of September.

"The amounts of the estimates for the contractors are as follows:

T. J. Shea, Section 1	$20,881.44
Harrison Construction Co., Section 2	12,887.34
Earle & Dougherty, Section 5	8,574.57
Total amount	$42,343.35

"Total amount paid on estimates last month was $36,357.85.

"My estimate for the value of the work to be done during the month of October, for which funds will have to be provided, is as follows:

T. J. Shea, Section 1	$22,000.00
Harrison Construction Co., Section 2	14,000.00
Costa Construction Co., Section 3	6,000.00
J. P. Hall, Section 4	4,000.00
Earle & Dougherty, Section 5	10,000.00
Total amount of appropriation	$56,000.00

"I present herewith map showing the location of all sewer work completed to date. It will be noticed that there is a con-

tinuous stretch of over one and one-half miles completed from the outlet along Bayway.

"The rain during the month has interfered somewhat with the progress of the work. The nature of the excavation continues generally favorable.

"In certain portions of the work on Section 5 treacherous material is encountered, requiring great care in the construction of the sewer, and the taking of additional precautions to insure water-tight work.

"The work of the inspectors is, as a whole, satisfactory. During the month it became necessary to discipline one of the inspectors for carelessness.

"It has also been necessary to transfer inspectors from one section to another, in order, among other things, to economize on the number of inspectors on the work. The resolution employing the inspectors has designated the section upon which they would be employed. As some questions may arise as to the right to transfer a man employed to perform work on Section No. 1 to Section No. 2, for instance, I would respectfully request that a resolution be passed giving me authority to transfer inspectors as occasion might require.

"It will be necessary to employ an inspector for Section No. 4, who shall be ready to report for work some time during the present month.

"Respectfully submitted,

"ALEXANDER POTTER."

Mr. Speir moved that the report be received and placed on file. Motion was duly seconded and carried.

Mr. Cox moved that the Engineer be authorized to transfer inspectors from one section of the sewer to another at his discretion. Motion was duly seconded and on vote being taken was carried.

Mr. Glazier moved that Mr. John Wander, of West Orange, be appointed inspector on the Fourth Section at the usual salary of $3.50 per day. Motion was duly seconded and on vote being taken was carried.

Mr. Tuttle moved that the Engineer of the Joint Meeting be instructed to place T branches every twenty-five feet in the Town of Irvington where the sewer had not been already laid. Motion was duly seconded and on vote being taken was carried.

Mr. Cox asked the Secretary if any word had been received from Morristown relative to their joining in the Joint Trunk Sewer. The Secretary stated that no communication had been received from Morristown.

Mr. Cox said that he thought it unadvisable to delay work on the Millburn Section any longer and that if Morristown did not petition to join in the sewer before next Thursday, when the bids on the Millburn and Summit Section would be opened, that the work be let without further delay.

Mr. Potter said that Morristown would hold a meeting next Monday and that he expected they would present a petition at the next meeting of the Joint Meeting.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

T. J. Shea	$20,881.44
Harrison Construction Co.	12,887.34
Earle & Dougherty	8,574.57
Alexander Potter	1,587.88
Wm. Rollinson	314.90
Wm. B. Adams	125.05
Geo. W. Eager	50.00
S. R. Ogden	20.00
Grover Bros.	63.35

Mr. Speir offered the following resolution recommended by the Executive Committee as follows:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of forty thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Main Trunk Sewer, designated X A. Be it further

"Resolved, That the several municipalities represented in the Joint Meeting to raise and pay to the Treasurer of the Joint Meeting the sum of ten thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the East Branch or branch sewer designated as A. Q. T.; be it further

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of ten thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the First Division, West Branch of the sewer designated as A. B.; be it further

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of five thousand dollars, which shall be assessed

upon the several municipalities in the proportion fixed by the contract between said municipalities for the construction of the Second and Third Divisions of the sewer designated as B. K. L.; and it is further

"Resolved, That the Secretary give notice to the various municipalities of such assessments and the proportion thereof to be paid by each of the municipalities; and

"Resolved further, That the said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the 9th day of October, 1902."

Mr. Cox moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Speir moved that when the meeting adjourn it would adjourn to meet on next Thursday, October 16, 1902. Motion was duly seconded and on vote being taken was carried.

Mr. Tuttle moved that Mr. Eschenfelder be appointed as a committee of one to take up the matter of the right of way through William A. Batchelder, with Mr. Batchelder in Washington. Motion was duly seconded and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of October 16, 1902.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Speir moved that the reading of the minutes be dispensed with and the minutes be approved as printed. Motion was duly seconded and on vote being taken was carried.

Mr. Speir read a communication which he had received from Thos. W. Cauldwell, of the Sewerage Committee of Morristown, stating that they hoped to make a formal application in the near future to join in the sewer.

Mr. Glazier moved that the letter be received and placed on file. Motion was duly seconded and on vote being taken was carried.

Communication from Mr. Potter was read, advising the relocation of the sewer in the Fourth Section between Jefferson Avenue and Hilldale Avenue to the D., L. & W. R. R. property, and that the grade be raised so as to avoid quick-sand.

Mr. Speir moved that the communication be received and placed on file and that inasmuch as it was a matter which concerned South Orange and West Orange more particularly than the other municipalities that no action be taken until the representatives of South Orange and West Orange had an opportunity to go over the ground and give the matter careful consideration. Motion was duly seconded, and on vote being taken was carried.

Secretary reported that some of the heirs of the James Brown estate refused to abide by the agreement and insisted on being paid one dollar and a half a lineal foot for the right of way.

Mr. Cox offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through the plot designated as Plot No. 68, belonging to the estate of James Brown, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Speir moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Glazier moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree

with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 69, belonging to the estate of George D. Arthur, that counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Motion was duly seconded and on vote being taken was carried.

Mr. Glorieux announced that the time had arrived for the contractors to present their bids on the Sixth Section.

Mr. Riker announced that there was an omission in the bidding blanks of the under drains mentioned on page 33 of the specifications and that if any of the contractors had not inserted this in their bids they could at this time put in a supplementary bid on the under-drains.

No supplementary bids on under-drains were presented.

At 8:31 the Permanent Chairman announced that the time for presenting bids on the Sixth Section had expired. The bids were publicly opened by the Permanent Chairman and read in detail.

Eight bids were received in all from the following contractors, with totals as hereinafter set forth:

1. The Harrison Construction Company, of 745 Broad Street, Newark, first bid, $51,447.20; alternative, $40,407.70.
2. Robert J. Emmer, of Station I, Hoboken, N. J., first bid, $52,025.10; alternative, $39,964.26.
3. John J. Hart Company, of 56 Broad Street, New York City, first bid, $54,887.95; alternative, $42,844.12.
4. Thomas J. Shea, of Quincy, Ill., first bid, $53,973.00; alternative, $43,748.
5. John F. Shanley, of Newark, N. J., first bid, $61,716.75; alternative, $53,215.20.
6. Higginson & Shannon, of 538 Bergen Avenue, Jersey City, N. J., first bid, $62,255.60; alternative, $49,203.55.
7. Bruno, Salomone & Petitti, of 264 Summer Street, East Boston, Mass., first bid, $63,541.05; alternative, $49,203.55.
8. James Conway, of Central Avenue, Newark, N. J., first bid, $66,925.25; alternative, $55,691.20.

The bids were gone over by the Secretary and the various items checked.

The totals of the bids were formally read as above set forth.

Mr. Cox offered the following resolution for adoption:

"Resolved, That the contract for the Sixth Section be awarded to the Harrison Construction Company, it being the lowest responsible bidder, the contract to be in the alternative in accordance with the bid; the size of the sewer to be determined by the Joint Meeting hereafter.

"Resolved further, That the checks of the other bidders be forthwith returned to them."

Mr. Speir moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Cox offered the following resolution for adoption:

"Resolved, That the officers be directed to execute the contract when executed by the Harrison Construction Company, upon its approval as to form by Counsel and upon the presentation of a bond with the Fidelity and Deposit Company of Maryland as surety, duly executed and approved by the Counsel, in the penal sum of $26,000.00."

Mr. Hand moved that the resolution be adopted. Motion was duly seconded and on vote being taken was carried.

Mr. Tuttle moved that inasmuch as Mr. Kettler had resigned from the office of inspector, that Thomas W. Smith, of Irvington, be appointed to fill the vacancy. Motion was duly seconded and on vote being taken was carried.

Mr. Glorieux asked if there was any further business before the meeting.

Secretary stated that there were some bills to be paid, but that there was only one member of the auditing committee present.

On motion the bills were laid over until the next meeting.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of November 6, 1902.

In the absence of the Permanent Chairman the Secretary called the meeting to order.

Mr. Eschenfelder moved that Mr. Tuttle take the chair. Motion was duly seconded and carried.

On roll being called it was found that a majority of the municipalities were represented.

Recommendation of the Executive Committee was read as follows:

"Recommended that John W. Stiles be paid $100 for the trees damaged in the construction of the sewer on his taking affidavit that the trees were injured."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded and on vote being taken was carried.

Mr. Eschenfelder reported that during his recent visit at Washington he had searched for Wm. A. Batcheler but was unable to find out his address.

Mr. Speir moved that a vote of thanks be extended to Mr. Eschenfelder for his trouble. Motion was duly seconded and on vote being taken was carried.

The regular monthly report of Engineer was read as follows:

"Joint Meeting,
"Newark, N. J.:
"Gentlemen:—

"I beg leave to present my report for the month of October.

"The net amounts of the approximate estimates due the contractors for the month are as follows:

F. J. Shea, Section 1	$17,455.43
Harrison Construction Co., Section 2	10,588.63
Costa Construction Co., Section 3	2,576.72
Earle & Dougherty, Section 5	6,982.95
Total amount	$37,603.73

"The total amount paid for work done during September was $42,343.35.

"These figures show that although a fourth contractor has broken ground during the month, there was twelve per cent. less work done than during the preceding month. This is accounted

for by the fact that more difficult conditions of construction were encountered on all portions of the work, and further by the difficulty of getting material promptly.

"My estimate of the value of the work to be done during the month of November for which funds should be provided is as follows:

T. J. Shea, Section 1	$15,000.00
Harrison Construction Co., Section 2	10,000.00
Costa Construction Co., Section 3	6,000.00
J. P. Hall, Section 4	5,000.00
Earle & Dougherty, Section 5	6,000.00
Harrison Construction Co., Section 6	3,000.00
Total	$45,000.00

"Each of these items should be increased seven per cent. for engineering and inspectors.

"In length the First Section is 66 per cent. completed; the Second Section is 55 per cent. completed; the Third Section is 3 per cent. completed; the Fifth Section is 33 per cent. completed.

"In amount of work done the First Section is 75 per cent. completed; the Second Section is 60 per cent. completed; the Third Section is 3 per cent. completed, and the Fifth Section is 50 per cent. completed.

"The progress map, showing the work completed to date in red and the uncompleted work in blue, is presented herewith.

"Unless additional rights of way can be procured during the month on the Second Section, the Harrison Construction Company will be compelled to close down one of their gangs. The right of way preferably required is that through the Potter estate on Morris Avenue.

"The material encountered on Lyons Avenue continues to be extremely bad and a special construction is used in this work to insure water tightness and stability of construction. The cost of this construction will not be materially greater than the cost of an underdrain, whereas its permanent value to the work is much greater. We have adopted this method on all wet work.

"It will be necessary to engage at least four additional inspectors during the month, one for the Fourth Section, two for the Fifth Section, and one for the Sixth Section. Work on the last-named section will probably be started by the Harrison Construction Co. within ten days.

"The inspectors already employed are assigned as follows:

"Van Houten and Schlegel on Section 1.

"Hayward and Devereaux on Section 2.

"Hand and Smith on Section 3.

"Wander on Section 4.

"Hall and Welcher on Section 5.

"It was necessary on Monday last to put on an additional inspector and Mr. C. W. Cox suggested the name of Mr. Campbell for temporary employment until action could be taken by the Joint Meeting, and he was placed on the work. Mr. Campbell is a man of much intelligence and will make a good inspector.

"Respectfully submitted,

"ALEXANDER POTTER,
"Chief Engineer."

Mr. Speir moved that the report be received and placed on file. Motion was duly seconded and on vote being taken was carried.

Mr. Speir moved that the Engineer be directed to embody in his monthly reports a detailed statement of all extras in the construction of the sewer. Motion was duly seconded and on vote being taken was carried.

Mr. Potter raised question as to paying Earle and Dougherty for lowering the grade of the sewer in Lyons Avenue, from 17 feet to 22 feet for a distance of about 900 feet, which is approximately 5 feet below that called for in the plans and specifications. Mr. Potter explained that this change in the grade was made necessary to conform with the grade furnished by the City Engineer of Newark. Mr. Potter further reported that this grade made it necessary to change the line of the sewer at the corner of Grove Street and Nineteenth Avenue, so as to avoid a deep cut. After discussion the matter was laid on the table.

Communication from the Harrison Construction Co. was read, stating that they would be unable to complete the Second Section at the time specified in the contract unless more rights of way were obtained.

Mr. Speir moved that the communication be received and placed on file. Motion was duly seconded and on vote being taken was carried.

Mr. Eschenfelder moved that inasmuch as he was the only member of the auditing committee present that the chair appoint two temporary members. Motion was duly seconded and on vote being taken was carried.

Chair appointed Messrs. Cox and Hand to serve on the Auditing Committee.

Mr. Hand moved that the Engineer require the Inspectors to

be on the work all the time during working hours. Motion was duly seconded and on vote being taken was carried.

Bill of John Erhardt, in the sum of $130 for damages to trees, etc., was read. Secretary stated that Mr. Erhardt had advised him that he presented this bill in compliance with an agreement made with Mr. Potter.

Mr. Speir moved that no action be taken and that the matter be referred to the Engineer to report at the next meeting. Motion was duly seconded and on vote being taken was carried.

Communication from the general manager of the John Stevenson Company, of Elizabeth, was read, asking permission to connect with the sewer in Bayway.

Mr. Eschenfelder moved that the Secretary notify The John Stevenson Co. that no connection could be made until the sewer was completed. Motion was duly seconded and on vote being taken was carried.

Bill of the Elizabeth Gas Light Co., in the sum of $16.30, for altering gas mains, was read.

Mr. Potter said the bill should have been presented to T. J. Shea.

Mr. Speir moved that the Secretary be directed to return the bill with proper explanation. Motion was duly seconded and on vote being taken was carried.

Secretary stated that the form of contract passed on at the last meeting did not include the desk telephone in Mr. Woodruff's room, and submitted a form of contract including both telephones.

Mr. Speir moved that the Secretary be authorized to execute the contract with the New York and New Jersey Telephone Co. Motion was duly seconded and on vote being taken was carried.

Mr. Cox moved that the temporary appointment of Charles Campbell as Inspector be ratified and confirmed and that he be appointed a permanent Inspector on the sewer. Motion was duly seconded and on vote being taken was carried.

Mr. Speir moved that Messrs. James F. Farrell and William Van Iderstine, of South Orange, be appointed Inspectors on the sewer. Motion was duly seconded and on vote being taken was carried.

Mr. Tuttle said that he would suggest the appointment of Moses Batchelder, of Irvington, as Inspector.

Mr. Cox moved that Mr. Batchelder be appointed Inspector

on the sewer. Motion was duly seconded and on vote being taken was carried.

Mr. Phraner stated that on consulting the Engineer's estimate of work for the next month that he would need $25,000 to meet the payments to the contractors.

Mr. Eschenfelder moved that the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $25,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

On the Main Trunk, designated as XA, $10,000.

On the First Division, West Branch, designated as AB, $5,000.

On the Second and Third Divisions, designated as BKL, $5,000.

On the Millburn and Summit Branch, designated as BI, $5,000.

And further, that the Secretary be instructed to give notice to the various municipalities of such assessment and the proportion thereof to be paid by each municipality, and further, to notify them to pay said money to the Treasurer of the Joint Meeting within twenty days from the 6th day of November, 1902.

Motion was duly seconded and on vote being taken was carried.

Communication from W. W. Cutter, Counsel for Morristown, was read. Mr. Eschenfelder moved that the matter be referred to Counsel and that the Secretary be directed to formally acknowledge the communication and forward a copy of the original letter sent to Morristown's Sewerage Committee, embodying the conditions under which they could join in the sewer and to notify Mr. Cutter that the matter had been referred to Counsel. Motion was duly seconded and on vote being taken was carried.

Mr. Speir stated that he had received a letter from Mayor Ryan, of Roselle Park, asking that they be given additional weir measurement than that already agreed on.

It was moved that the matter be referred to the Engineer to report on at the next meeting. Motion was duly seconded and on vote being taken was carried.

The following report was read:

"Report of the Special Committee of Representatives of South Orange and West Orange on the proposed change in line and

grade recommended by the Engineer.

"Gentlemen: We beg to report that by appointment we met the Engineer on the ground and after a thorough discussion of the matter we recommend the adoption of the change suggested by the Engineer with the exception of the substitution of a 6-inch raise in grade, instead of a 1-foot raise, from a point south of Jefferson Avenue, in the Township of South Orange, through the Village of South Orange, to the north village line.

"Respectfully submitted,

"Francis Speir, Jr.,
"W. E. Glazier."

Mr. Eschenfelder moved that the report be received and placed on file and the recommendations concurred in. Motion was duly seconded and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

John Hauck	$	94.50
James H. Van Houten		94.50
Herman Schelegel		94.50
Chas. E. Derivaux		91.00
G. W. Hayward		94.50
George C. Hand		64.00
Thos. R. Smith		3.50
John Wander		52.50
Wm. Welcher		63.00
Theo. W. Hall		94.50
Wm. B. Adams		150.85
P. J. McGuire		91.00
Sunday Call		5.55
New Jersey Zeitung		18.00
Orange Journal		37.25
Engineering Record		18.40
Newark Evening News		7.40
Grover Brothers		9.00
Wm. Rollinson		190.71
S. Leschziner & Co.		54.16
T. J. Shea		17,455.43
Harrison Construction Co.		10,588.63
Costa Construction Co.		2,576.72
Alex. Potter		1,410.14

On motion the meeting adjourned.

William Rollinson,
Secretary.

Joint Meeting of December 4, 1902.

On roll being called it was found that all the municipalities were represented.

Mr. Speir moved that the reading of the minutes of the previous meeting be dispensed with and the minutes be approved as printed, with the correction that the name of Mayor Cummings be inserted in place of Mayor Ryan, in the resolution relating to Roselle Park. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Wm. Rollinson, Secy.,
"Joint Commission, City:

"Dear Sir:—We herewith respectfully notify you, in accordance with the clause attached to our contract for building Section 6 of the Joint Outlet Sewer, in which it states that the Joint Commission will notify us which size sewer is to be built, within ten days of receiving notice, accompanied by a certificate from the Chief Engineer.

"Enclosed please find certificate from Mr. Potter, and we would like to know at the early convenience of the Joint Commission, which of the alternatives it will adopt.

"Respectfully yours,
"The Harrison Construction Co.,
"H. L. Harrison, Pres."

The certificate of the Engineer was read as follows:

"New York, Nov. 28, 1902.

"This is to certify that a determination on the part of the Joint Meeting is necessary at its next meeting as to the size of the sewer on the 6th Section, in order to prevent serious delay in the completion of the work by the contractors, Harrison Construction Company.

"Alexander Potter,
"Chief Engineer."

It was moved that the communication be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

On being called on, Mr. W. W. Cutler, Counsel for Morristown, said that he had come to the meeting in answer to communication he had received from the Secretary, asking that Mor-

ristown give a definite answer, as to whether they would join in the sewer or not.

Mr. Cutler submitted the following communication from the Board of Sewerage for Morristown and from Patrick Farrelly, President of the State Hospital, at Morris Plains, which he stated would explain Morristown's position:

"Morristown, N. J., Dec. 3, 1902.

"To the Joint Meeting,
"142 Market Street,
"Newark, N. J.:

"Gentlemen:—In reply to your letter of the 1st inst., we beg to say that the Morristown Board of Sewerage strongly favor entering into the Joint Trunk Sewer and are using their utmost endeavors to bring about joint action on the part of Madison and the authorities of the New Jersey State Hospital at Morris Plains, which will enable Morristown to make the connection at a cost within the limit proposed by the Act of the Legislature under which the Morristown Board were appointed.

"It will be seen by the letter from the Hospital Board, presented with this, that the plan is looked upon with favor by them, and that they propose to join the Trunk Line System as soon as an appropriation can be obtained from the Legislature.

"We have not as yet obtained any official expression of opinion from Madison, and judge that more discussion will be required before the committee there feel authorized to make a recommendation.

"The Morristown Board desire to recommend the Trunk Line System and expect to do so as soon as they can receive the co-operation of the adjoining municipalities.

"Very respectfully yours,
"Wm. B. Skidmore,
"Thos. W. Cauldwell,
"Chas. W. Ennis,
"Board of Sewerage for the Town of Morristown."

"Manager's Office, State Hospital.
"Morris Plains, N. J., Nov. 24, 1902.

"Robert Foote, Esq.,
"Chairman of the Commission,
"Morristown, N. J.:

"Gentlemen:—The Board of Managers having listened with pleasure, and we hope with some profit, to your presentation of the needs of Morristown and other places as to the disposal of their sewerage, and of the desirability if not the necessity of co-operation on the part of the State Hospital in securing to them the advantages now offered by Summit and other munici-

palities which have already arranged for a trunk line sewer to tide water. I beg to say on their behalf that while each and every member is anxious to do all within their power to the end that the people of this section of the State, as well as to those elsewhere, to secure such a system of sewerage as will promote their health and comfort, that they cannot join the proposed Trunk Line System without authority and an appropriation from the Legislature.

"If, however, Morristown and the other towns west of Summit will secure the extension of the trunk line to Morristown, the managers will have an estimate made as to the cost of disposing of all the sewerage of the institution into and through said trunk sewer to tide water, and will as soon thereafter as practicable, if they deem it consistent with their duties as managers (and I think they will), ask the Legislature for authority and an appropriation for that purpose.

"With much respect, I am,

"Yours truly,

"PATRICK FARRELLY,

"President."

On motion the communications were received and placed on file.

Mr. Cutler further stated that under the statute the Sewerage Committee could not bind Morristown for an amount exceeding five per cent. of the assessed valuation, but that in the event of either Madison or the State Hospital agreeing to join with them, the cost would fall below the amount allowed by law, and Morristown could join in the sewer under the present act, but as it now stands, while they were very anxious to join, they could not state so formally until there had been a vote from the people to that effect.

After further discussion, recommendation of the Executive Committe was read as follows:

"Recommended that action be taken on the notice of the Harrison Construction Company and that the largest size sewer called for under the contract, for the construction of the 6th Section, be adopted."

Mr. Cox moved that the recommendation be concurred in. Mr. Hand seconded the motion, and on vote being taken motion was unanimously carried.

Communication from Mayor Ryan and form of answer suggested by Mr. Potter was read as follows:

"November 21, 1902.

"Alex. Potter, Esq.,
"New York City:

"Dear Sir:—In reply to yours of the 19th, respecting the resolution offered and passed by the Council on the 1st inst., as to the lowering the grade on Bayway in front of the Sanitary Company's works.

"The member of the Council who offered this resolution was not aware no doubt that there was an understanding between you, representing the Joint Sewerage Commission and the Street Department of our city, that Mr. Shea should lower the grade on Bayway in front of the Sanitary Company's works before finishing the sewer within our city limits.

"As the resolution was introduced and passed, however, we think it would be proper for you, or the Joint Sewerage Commission, to reply to the same, by Council, by saying that it is your intention to lower the grade at the point on the avenue referred to and that you had previously arranged with our Street Department to do this work. I think you will find that this is all that will be necessary.

"Very truly yours,
"P. T. Ryan,
"Mayor."

(Answer suggested by Engineer.)

"Mayor and City Council,
"Elizabeth, N. J.:

"Gentlemen:—It is the intention of the Joint Meeting to insist upon the contractors lowering the grade in front of the Sanitary Company's works in Bayway to the same level as existed before the excavation for the sewer began. The work will be done before the completion of the sewer through the City of Elizabeth.

"Yours very truly, etc."

Recommendation of the Executive Committee was read as follows:

"Recommended that the Secretary be directed to communicate with the City Council of Elizabeth in the manner advised by the Engineer."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker read a proposed form of agreement with Conrad Weppler, for the right of way through his property, the consideration being at the rate of a dollar and a half a lineal foot.

Mr. Cox moved that the Permanent Chairman be authorized to execute the agreement for the Joint Meeting, and that the money be paid on the execution and delivery of the deed. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker read a proposed form of agreement with Julian and Hamilton Kean, for the right of way through their property, the consideration to be at the same rate per lineal foot as allowed Noah Parcell by the Commissioners.

It was moved that the Permanent Chairman be authorized to execute the contract for the Joint Meeting and that the money be paid on the execution and delivery of the deed. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker stated that Frederick Townley had agreed with him to sell the right of way through his property for one dollar a lineal foot.

Mr. Baumann moved that Frederick Townley be paid one dollar a running foot for the right of way through his property. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker further stated that the Executors of the Wm. Potter estate were willing to sell the right of way through the estate at one dollar a lineal foot and that he would advise closing with them at this figure, and allow the Commission to make the award to the tenant for damage to crops.

Mr. Cox moved that Counsel be authorized to close with the Wm. Potter estate for the right of way at one dollar a lineal foot, and that it be left to the Commision to award the damages to the tenant. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved that the estate of Morris Allen be paid at the rate of one dollar a lineal foot for the right of way through the property. Motion was duly seconded, and on vote being taken was carried.

It was moved that Mary Ann and Gilbert Smith be paid one dollar a lineal foot for the right of way through their property in accordance with the contract signed by them. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved that the representatives of the Joint Meeting be authorized to close with the Elizabethtown Water Company for the right of way through the Water Company's property at a

figure not to exceed one dollar a lineal foot. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox said the Burt Manufacturing Company had executed a release of the right of way through the estate of Owen McCabe for the consideration of ten cents a lineal foot.

Mr. Speir moved that the Burt Manufacturing Company be paid ten cents a lineal foot for the release of the right of way through the estate of Owen McCabe. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter submitted his regular monthly report, which was read as follows:

"New York, Dec. 4, 1902.

"Joint Meeting,
"Newark, N. J.:

"Gentlemen:—My report for the month of November is as follows:

"Estimate of work done by contractors. The net amounts of the approximate estimates due the contractors for the month of November are as follows:

T. J. Shea, Section 1	$ 8,838.50
Harrison Construction Co., Section 2	9,564.69
Costa Construction Co., Section 3	7,457.42
J. P. Hall, Section 4	2,078.57
Earle & Dougherty, Section 5	8,143.72
Harrison Construction Co., Section 6	1,519.77
Total	$37,602.67

"The total amount paid for work done during the month of October was $37,603.73. The estimate for work to be done during the month of December is as follows:

T. J. Shea, Section 1	$10,000.00
Harrison Construction Co., Section 2	7,500.00
Costa Construction Co., Section 3	8,000.00
John P. Hall, Section 4	6,000.00
Earle & Dougherty, Section 5	7,000.00
Harrison Construction Co., Section 6	5,000.00
Total	$43,500.00

"Each of these items should be increased by seven per cent. for engineering and inspection.

"As will be seen by the above estimate, work is now under construction on all sections of the Joint Sewer. The great fall-

ing off of the quantity of work done by Contractor Shea is due to the fact that the large machine has been idle for the greater part of the month by reason of their moving it from one part of the work to the other.

"Rights of way have practically been secured through the Weppler and Kean properties so that the Harrison Construction Company may now proceed with this part of their work.

"In accordance with the resolution of the Joint Meeting, I append hereto a statement of extra work allowed each contractor during the month. It will be seen by this that the actual amount of extras allowed the contractors is very small. There are other items, however, which do not show in the total bid of the contractors, for which allowance must be made in accordance with the prices fixed by the contractors. I refer to the item for extra brick work, quick-sand, timber in foundation, gravel in foundation, extra excavation, and in some instances under drain, where prices have not been fixed by the contract.

"It is quite impossible to determine beforehand the amount of extra brickwork that will be used in the construction of the sewers, for until excavation has been made it is quite impossible to determine whether or not the regular section of the sewer can be maintained, and it is necessary to use haunch walls to support the circular section, on account of the unstable character of the foundation. The amount of this extra brick work is calculated and is paid for at so much per cubic yard, the prices therefor being established by the contract.

"The amount of quicksand that will be encountered is also problematical, and was not estimated upon, the price being fixed at $1.25 per cubic yard. The borings do not indicate with any degree of accuracy the character of the material that is being encountered, for we are finding that the character of the ground is constantly changing, in many instances every twenty-five feet. What we are contending against in this connection can best be understood by a visit to the ground, and I would suggest that the commission fix a day when an examination can be made which will prove to the Board the justification of the large amount of extra brickwork which has been used on the 3rd Section of the sewer.

"In the construction of the Lyons Avenue Sewer we have reached a point about two hundred feet from the Newark city line where the sewer is over eighteen feet deep. The cost of this work to the contractor is many times what he is getting for it, and as the depth is greater than was contemplated, an extra will have to be made the contractor for this extra depth, as we are getting deeper all the time. I have deemed it wise to stop the construction of the sewer at a point two hundred feet from the Newark city line, because of the great expense that the Commission will be put to if it is paid for by force account. In order to make

use of the sewer, Newark will have to construct eight or nine hundred feet practically at the same depth. The two hundred feet yet remaining to be done can be constructed by the contractor doing the Newark work much more economically than the present contractor is doing it. As it is money saved to the Joint Meeting, I have deemed it wise to terminate the sewer as above stated.

"I beg to report upon the bill of John Ehrhardt for the sum of $130 as damage to trees, which bill is reported to have been presented in compliance with an agreement made with me. The facts of the case are these: I made a tentative agreement with Mr. Ehrhardt for the right to cross his property at so much per foot, with the understanding that if the price fixed was agreed upon the Joint Meeting would pay for any trees that might be damaged, in addition to this price. Mr. Ehrhardt repudiated this agreement. I do not see how Mr. Ehrhardt can hold to a part of the agreement made when he repudiated the other part. I cannot recommend the payment of this bill on account of any agreement had with me in reference thereto, although it is a fact that a number of small apple trees were destroyed during the construction of the sewer.

"I beg to report that there will be no difficulty in complying with the request of Mayor Cummings of Roselle Park, for an additional station for measuring the flow of the sewage coming from that place.

"At the beginning of the winter season, I wish to call the attention of your body to the fact that the number of days during which Inspectors cannot be employed will become greater. Heretofore I have approved the bills of the Inspectors for every day of the month excepting Sundays, not excepting the days that no work was done by the Inspectors. For the next four months the amount paid to Inspectors on idle days will be considerable, and I wish to raise the question as to whether it is the intention of the Joint Meeting to continue the payment of the Inspectors for their full time. I submit herewith progress map showing the amount of work done up to December 1st.

"Respectfully submitted,

"Alexander Potter."

List of extras for month of November and prices fixed by Engineer:

"T. J. Shea, Section 1—Extra excavation, 24 cubic yards, price fixed, 75c.; under drain, 1,050 feet, price fixed, 25c.; extra vitrified brick, 104, $7 per M.

"Harrison Construction Company, Section 2—Constructing 8-inch metal road in Union Township, 845 square yards with filling, 60c. per sq. yd.; 1,220 feet under drain, 25c.; 56 extra vitri-

fied brick, $7 per M., 145 cubic yards extra excavation, 50c. per cu. yd.

"Costa Construction Company, Section 3—Price for timber foundation fixed at $30 per M.

"Earle & Dougherty, Section 5—665 feet of 15-inch pipe, 10 to 14 feet deep, at 50c. additional; 75 feet of 12-inch pipe, 14 to 18 feet deep, at $2.10 additional; 100 feet of 4-inch deep cut connection, 30c.; 550 muslin joints at 6c. each.

"Alexander Potter."

Mr. Tuttle moved that the Engineer's report be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter stated that some of the Inspectors had worked on Thanksgiving Day, while others had not, and he wanted to know whether they should be paid for that day or not.

Mr. Eschenfelder moved that all the Inspectors be paid for Thanksgiving Day. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter further stated that he had allowed Herman Schlegel to take two days off, but that the progress of the work did not suffer during his absence.

Mr. Baumann moved that Mr. Schlegel be paid for the two days he was absent. Mr. Eschenfelder seconded the motion, and on vote being taken was carried.

Mr. Riker said that while the amount of money at issue was small, still it would establish a precedent which he thought would be detrimental to the interests of the Joint Meeting.

Mr. Cox moved that the resolution be reconsidered. Motion was duly seconded, and on vote being taken was carried.

After further discussion, Mr. Baumann said he would withdraw his motion with the consent of Mr. Eschenfelder, who had seconded the motion. Mr. Eschenfelder said he would consent to its withdrawal and the motion was withdrawn.

Question of change in grade, etc., referred to in the Engineer's report discussed.

Mr. Baumann said he would talk the matter over with Mr. Adam, the Engineer for Newark, and make a report at the next meeting.

Question of paying Inspectors during stormy weather was raised and discussed.

Mr. Speir moved that the Inspectors be required to report every day during the continuance of the work on the sewer, but in the event of the Engineer shutting down the work for a week or over on his notifying the Inspectors to that effect that they be not paid for that time. Motion was duly seconded, and on vote being taken was unanimously carried.

Question of additional weir measurement for Roselle Park taken up.

Mr. Speir moved that the Secretary be instructed to communicate with Mayor Cummings of Roselle Park and advise him that the Joint Meeting could see no reason why their request for additional weir measurement should not be granted. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter asked that he be advised as to the meaning of the resolution passed at the last meeting to the effect that he include in his report a detailed statement of all extras in the construction of the sewer.

Mr. Riker said what was wanted was an account of all items when the cost would be additional to the gross price figured on by the contractors.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Wm. Rollinson	$ 147.95
John Hauck	87.50
James H. Van Houten	87.50
Herman Schlegel	80.50
G. W. Hayward	87.50
Charles E. Deveraux	87.50
Thos. R. Smith	87.50
George C. Hand	87.50
John Wander	91.00
Wm. Welsher	87.50
Theo. W. Hall	87.50
James Farrell	59.50
Charles Campbell	84.00
W. H. Van Iderstine	31.50
Wm. B. Adams	124.30
P. J. McGuire	62.40
Alexander Potter	1,410.10
T. J. Shea	8,838.50
Harrison Construction Company	9,564.69
Costa Construction Company	7,457.42

James P. Hall	2,078.57
Earle & Dougherty	8,143.72
Harrison Construction Company	1,519.77
P. H. & J. Conlan	240.72
S. M. Davy	4.15
Henry Keenan & Son	10.00
Roe & Conover	17.55
New York & New Jersey Telephone Company	11.55
Engineering News Publishing Company	26.40
Grover Bros.	14.01
R. C. Cushing	3.50

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of December 9, 1902.

Special Joint Meeting, held December 9, 1902, for the purpose of levying an assessment to meet the December disbursements.

On roll being called it was found that a majority of the municipalities were represented.

The following communication was read:

"December 8, 1902.

"William Rollinson,
"Secy. of Joint Meeting.

"Dear Sir:—As I will not be present at the meeting called for to-morrow night, I would suggest that the following assessments be passed: AQT—$10,000, AB—$5,000, BKL—$5,000, BI—$5,000, total $25,000.

"Yours very truly,
"FRANCIS S. PHRANER,
"Treasurer."

On motion the communication was received and placed on file.

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of Twenty-five Thousand Dollars, which shall be assessed upon the several municipalities in the proportion fixed by

the contract between the said municipalities in the following manner, to wit:

"On the East Branch, or branch sewer designated as AQT—$10,000.

"On the First Division, West Branch, designated as AB—$5,000.

"On the Second and Third Divisions, designated as BKL—$5,000.

"On the Millburn and Summit Branch, designated as BI—$5,000.

"And further, that the Secretary be instructed to give notice to the various municipalities of said assessment and the proportion thereof to be paid to each municipality, and further to notify them to pay said moneys to the Treasurer of the Joint Meeting within twenty days from the 9th day of December, 1902."

Motion was duly seconded and on vote being taken was carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of January 8, 1903.

On roll being called it was found that all the municipalities were represented.

Mr. Eschenfelder moved that the reading of the minutes of the previous meeting be dispensed with and that the minutes be approved as printed. Motion was duly seconded and on vote being taken was carried.

The following recommendations of the Executive Committee were read:

"Recommended that Counsel be requested to draw and have introduced in Legislature an act * * *

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded and on vote being taken was carried.

"Recommended that Mr. Woodruff pay to the Joint Meeting for the use of the room occupied by him, a rental at the rate of $150 per annum, it being understood that the Joint Meeting shall retain the right to use said room for the purpose of holding meetings."

Mr. Glazier moved that the recommendation be concurred in. Motion was duly seconded and on vote being taken was carried.

"Recommended that the resolution adopted June 26, 1902, requiring the inspectors to report at the meetings of the Joint Meeting be rescinded, and recommended further that the inspectors be paid the day following the monthly meeting."

Mr. Eschenfelder moved that the recommendation be concurred in. Motion was duly seconded and on vote being taken was carried.

"Recommended that the action of the Secretary in paying Wm. A. Batchelor $34.45, for the right of way through his property, be ratified and confirmed."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded and on vote being taken was carried.

"Recommended that the change in the grade of the sewer in Lyons Avenue, made by Mr. Potter, be ratified and confirmed."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded and on vote being taken was carried.

Mr. Baumann said that he had brought the matter up before the Board of Works and that he had been authorized to advise the Joint Meeting that the Board thought it advisable for the City of Newark to build the incompleted portion of the sewer in Lyons Avenue, as advised by the Engineer, but that before formally agreeing to do so, they would require an agreement in writing to the effect that the Joint Meeting would reimburse the city of Newark for the cost of construction.

Mr. Eschenfelder moved that Counsel be instructed to draw an agreement between the Joint Meeting and the city of Newark, whereby the city of Newark agrees to build the incompleted portion of the sewer in Lyons Avenue, and that the Joint Meeting agrees to reimburse the city of Newark for the cost of construction; and, resolved, further, that the Permanent Chairman and Secretary be authorized to execute said agreement when same had been prepared by Counsel. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker read a proposed amendment to the Joint Sewerage Act, embodying the recommendations of the Executive Committee.

Mr. Speir moved that the amendment to the act drawn by

Counsel be approved and that he be instructed to have same introduced in Legislature in its present form, unless it should be determined hereafter to have an additional amendment in the matter of assessing benefits and damages. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker read proposed form of contract with Roselle Park, embodying the conditions already passed on by the Joint Meeting (see minutes of meeting held April 24, 1902).

Mr. Speir moved that the contract be approved and the Permanent Chairman and Secretary of the Joint Meeting be authorized to execute same on behalf of the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Communication from the Harrison Construction Co. was read, asking that Joint Meeting procure additional rights of way in the Weppler and Kean properties.

Mr. Speir moved that the communication be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox submitted a communication from the Diamond Mills, of Millburn, asking that they be allowed to discharge into the sewer.

Mr. Speir moved that it is the opinion of the Joint Meeting that the Township of Millburn has the right to make such agreements with the mills in the township, in the matter of the disposal of their waste water, as to them seems best, provided that the nature of said discharge shall not be detrimental to the sewer. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter read his regular monthly report as follows:

"New York, January 8, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present my report for the month of December.

"The work done by the contractors during the month of December was as follows:

Section 1, T. J. Shea, contractor	$ 4,075.83
Section 2, Harrison Construction Co., contractor	2,980.08
Section 3, Costa Construction Co., contractor	3,418.52
Section 4, J. P. Hall, contractor	3,557.92

Section 5, Earle and Dougherty, contractor	3,980.45
Section 6, Harrison Construction Co., contractor	4,060.39
Total	$22,073.19

"The total amount of the estimates of the contractors for the month of November was $37,602.67. The approximate amount of work estimated to be done during January is as follows:

Section 1, T. J. Shea, contractor	$ 5,000.00
Section 2, Harrison Construction Co., contractor	5,000.00
Section 3, Costa Construction Co., contractor	2,500.00
Section 4, J. P. Hall, contractor	3,000.00
Section 5, Earle & Dougherty, contractor	3,000.00
Section 6, Harrison Construction Co., contractor	3,000.00
Total	$21,500.00

"I beg to report that the inclement weather is making satis factory sewer construction difficult of attainment and I have decided to shut down all work that is in danger of being seriously affected by the frost. The order to close down will be effective on the 20th day of January, except in special cases.

"The work on Sections 1 and 2 is being prosecuted at two points on each section. All these excavations are deep and the brickwork is thus protected from the frost. This work can there fore be continued for the present, provided that the ice and frost are removed from the bricks by fire before laying.

"Open work on Section 3 is shallow and good brick work is difficult to secure. Work at this point will be suspended. The work on the tunnel will be prosecuted during the entire winter; no brick can be laid in the tunnel until April or May. One shaft is down to grade, a second is half completed, and a third is about to be started. The material is not as favorable to economical tunnel construction as we would like, but it is no worse than might reasonably be expected.

"Section 4—Work on this section was held up on account of material, but is now proceeding as satisfactorily as could be expected. The surface of certain parts of this section is swampy and the work can be prosecuted at such points with facility while the surface is frozen. Generally, however, better results will be secured by closing down the work until the middle of March.

"Section 5—All work on this section is wet. On Lyons Avenue there remains 100 feet of 15-inch pipe to complete before that street can be opened to the public. This will be completed before work is suspended for the winter. The sewer on Lincoln Place will be carried up to the center of Park Avenue, when the work will be discontinued for the winter. The two sewers being constructed in Vailsburg will be continued across the marshes and up to the public highway while the frost is in the ground.

"Section 6—We have already suspended work on a portion of the 6th Section and will continue on the other portion until the extremely shallow digging is reached, when we shall close down for the winter, excepting filling.

"Pursuant to the instructions of the Joint Meeting, I have prepared an approximate statement of items contemplated under the specifications and for which prices in most cases were fixed by the specifications and contract, the cost of which is not included in the face value of the bids of the contractors.

"Section 1:

"(a) The sewer on the 1st Section was deepened two feet for a considerable length after the contract was let, due to the increase in the size of the sewer in the 2nd Section and the necessity of keeping the top of the sewer at the same grade as originally designed to provide cover for the sewer for a length of one mile to enable us to cross under the stream at Stiles' and under the spillway on Kean's old mill property. Another change of grade was made below the Pennsylvania Railroad to provide for the increased amount of sewage coming from Roselle Park. Changes of this nature have caused a reclassification at an added expense of $6,000.00.

"(b) After the contract was let we were required to increase the size of the wharf by carrying it out to the line established by the Riparian Commission and raising the elevation two feet at the request of the city of Elizabeth, thus increasing the cost $524.60.

"(c) The contract price has been increased $1,200.00 for extra brickwork made necessary by the requirements of the railroad company in reinforcing the sewer under all their tracks, also by the crossing of culverts and sewers and the building of haunch walls where unstable foundations were encountered in Elizabethport.

"(d) Twelve hundred dollars has been added for timber in foundation.

(e) The special construction under the Pennsylvania Railroad crossing where the shape of the sewer was changed from a 42-inch circular to a section 72-inch by 20-inch, cost $1,513.00 for one hundred and fifty feet of changed section. This sewer was built of concrete and expanded metal.

"(f) During the late part of the year we were forced to use under-drains due to the accumulation of water in the ground, the presence of which defeated good construction without underdraining. This has cost about $900 additional on this section.

"(g) The branches that the city of Elizabeth required us to build in the sewer cost $184.50.

"(h) Inaccuracies in the borings and the deepening of the sewer as mentioned in item (a) make the total amount of work to be paid for $6,000 greater than the amount stated in the preliminary estimates.

"The items enumerated above amount to $17,622.10.

"Section 2:

"(a) Quicksand encountered has cost $600.00 in addition to the contract price.

"(b) The construction of a road in accordance with the agreement with Union Township, where the grade was raised on account of the sewer, cost $507.00.

"(c) The special crossing on the Stiles property, where the section of the sewer was changed from 42-inch drain to three 24-inch cast-iron pipes, the work incidental thereto in putting the Stiles property in the condition called for in the agreement with him, cost $628.34.

"(d) Surplus rock has cost $7,000.00.

"(e) Extra brickwork, due to change of section in quicksand, cost $2,400.00.

"(f) Work on Elizabeth River crossing cost $300.00.

"(g) Concrete in spillway and abutments cost $350.00 more than anticipated.

"(h) Additional excavation over that contemplated in the plans cost $127.50.

"(i) Vitrified brick in sewers cost $40.96.

"(j) By filling in the roads we have saved $2,950.00 in cast-iron pipe.

"The net amount of these items is $10,997.80.

"Section 3:

"The stated contract price on this section has been increased so far as follows:

"(a) By 626 cubic yards of quicksand, for which a price is fixed by the contract, but no estimate of the quantity given. The value of this is $782.50.

"(b) By 28 cubic yards of gravel refilling, for which a price is fixed, but no quantities given. The value of this is $42.00.

"(c) By 200 cubic yards of brickwork in haunch walls, due to the instability of foundation. The value of this is $2,200.00.

"(d) By $1,035 for timber in foundations for which a price has been fixed at $30.00 per thousand.

"The total increase on this section is $4,059.71.

"Section 4:

"The cost of work on this section has been increased as follows:

"(a) Timber in foundation for which a price has been fixed in the contract, but no quantities given, and timber in underdrain amounting to $916.42 in all.

"(b) The prosecution of the work at this season causes us to encounter more ground water than at any other season of the year, increasing the number of tar joints for which an extra price is paid.

"(c) Quicksand has also been encountered to the extent of thirty cubic yards at a cost of $37.50.

"The total amount of increase to date is $953.92.

"Section 5:

"(a) Additional rock increases the cost of this section about $6,000.00.

"(b) Wrapping joints with muslin increased it $194.40; (c) quicksand increased it $1,900.00; (d) covering sewer in Dorer property due to change in line before the consent for right of way would be given by property owners cost $468.48; (e) cast-iron river crossings have added $382.64; (f) timber used as foundations and in underdrain has cost $2,080.

"The total increased cost on this section is $11,025.52.

"Section 6:

"Timber in foundation for which a price was fixed at $30.00, increased the cost of this section $114.60.

"Brickwork for haunch walls for which a price is fixed at $12.00, increases the cost $900.00.

"The total increase on this section to date is $1,014.60.

"I submit herewith progress map showing the amount of work done up to the first of January.

"Respectfully submitted,

"ALEXANDER POTTER."

Mr. Speir moved that the report be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved in the event of the Engineer deciding to shut down work on any portion of the sewer for a week or over, he should notify the inspectors in writing to that effect. Motion was duly seconded, and on vote being taken was carried.

Secretary stated that through an error the Century Building had not presented their bill for rent at the last meeting, and that he had paid the $54.16, as required under the contract.

Mr. Speir moved that the action of the Secretary in paying the rent be confirmed and ratified. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

A. Eschenfelder	$ 150.00
C. V. Baumann	150.00
E. D. Tuttle	150.00
Francis Speir, Jr.	150.00

W. E. Glazier	150.00
Chas. W. Cox	150.00
James Van Houten	94.50
John Hauck	94.50
Herman Schlegel	94.50
C. E. Derivaux	94.50
Geo. W. Hayward	94.50
Geo. C. Hand	94.50
Thos. R. Smith	94.50
John Wander	98.00
Wm. Welsher	98.00
Theo. W. Hall	94.50
James Farrell	94.50
W. H. Van Iderstine	94.50
Chas. Campbell	94.50
George C. Hand	140.00
Chester N. Jones	10.00
T. J. Shea	4,075.83
Harrison Construction Co.	2,980.08
Costa Construction Co.	3,418.52
James P. Hall	3,557.92
Earle & Dougherty	3,980.45
Harrison Construction Co.	4,060.39
Alexander Potter	827.72
Wm. Rollinson	130.86
Francis S. Phraner	600.00
Edward F. Little	5.00
Orange Journal Publishing Co.	31.30
M. D. Dorer	12.00
P. J. McGuire	76.80
Wm. B. Adams	149.70
Grover Bros.	6.75
S. Leschziner & Co.	54.16

Mr. Baumann moved that the Executive Committee, together with the Permanent Chairman, act as a Legislative Committee. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that it is the judgment of the Joint Meeting that the act should be amended taking away from the commission appointed by the Supreme Court the power of levying assessments upon property benefited or damaged. Be it further resolved that Counsel be requested to draw an amendment to the Joint Sewer Act, providing that the question of benefits or damage be left to the local jointly contracting municipality, through whose streets the joint trunk sewer passes, to deal with such question, in accordance with the way in which they respectively construct their

several local systems, viz., either by assessment on property benefited or by bond upon the municipality at large without assessment.

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Counsel be instructed to insert such other amendments as may seem proper to carry out the intention of the above resolution. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of February 5, 1903.

On roll being called, it was found that a majority of the municipalities were represented.

Mr. Speir moved that the reading of the minutes of the previous meeting be dispensed with and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir offered the following resolution for adoption:

"Be it Resolved, By the Joint Meeting of the municipalities constructing with each other a Joint Trunk or Outlet Sewer to tide water, that the said Joint Meeting deems it necessary and has determined to take and appropriate for the purposes of said improvement, the following described lands, real estate and interest therein, shown on map on file in the office of the Joint Meeting showing the location of the Joint Outlet Sewer for South Orange, N. J., and adjacent municipalities, prepared by Alexander Potter, Chief Engineer, and entitled, South Orange Division, Millburn Avenue to South Orange Avenue, belonging to the following named owners:

"Plot No. 68, belonging to James Brown estate, the right to build, construct and maintain within a strip of land 15 feet wide, said Joint Outlet Sewer, and designated as Plot No. 68 on said map entitled South Orange Division, Millburn Avenue to South Orange Avenue, and described as follows:

"Beginning at a point in the line dividing the property of estate of Luke B. Riley from the property of James Brown estate, said point being fourteen and seven-tenths (14.7) feet from the

dividing line between Phoebe Burnett and Luke B. Riley and two hundred (200) feet westerly from the center of the Rahway River; both last mentioned distances being measured along the line between Luke B. Riley and said James Brown estate; thence running North 73 degrees 32 minutes East, a distance of 601.1 feet, more or less, to a point; thence turning and running North 68 degrees 34 minutes East, a distance of 64.1 feet, more or less, to a point in the line dividing the property of said James Brown estate from that of the George D. Arthur estate, said last named point being 466 feet westerly from the center line of the Rahway River as measured along said dividing line. Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the East, only during the construction of the sewer.

"Plot No. 69, belonging to the estate of George D. Arthur, the right to build, construct and maintain within a strip of land fifteen feet wide, said Joint Outlet Sewer, and designated as Plot No. 69 on said map entitled South Orange Division, Millburn Avenue to South Orange Avenue, and described as follows:

"Beginning at a point in the line dividing the property of the estate of James Brown from the property of the estate of George D. Arthur, said point being 466 feet westerly from the center line of the Rahway River as measured along said property line, thence running North 68 degrees 34 minutes East, a distance of 585.3 feet, more or less, to a point in the line dividing the property of said estate of George D. Arthur from the property of Hubert L. Pierson, said last named point being 246 feet distant from the center of the Rahway River as measured along said property line. Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the West, only during the construction of the sewer.

"Plot No. 73, belonging to Mrs. N. E. Taylor, the right to build, construct and maintain within a strip of land fifteen feet wide, said Joint Outlet Sewer and designated as Plot No. 73 on said map entitled South Orange Division, Millburn Avenue to South Orange Avenue, and described as follows: Beginning at a point in the line dividing the property of Thomas Nelson Sons from the property of Mrs. N. E. Taylor, said point being distant 172 feet westerly from the intersection of said property line and Baker Street, measured along said line; thence running North 34 degrees 18 minutes East, a distance of 157 feet, more or less, to a point in the southerly line of Baker Street, said last named point being distant 86 feet westerly form the easterly boundary of property of said N. E. Taylor along Baker Street. Together with the use of an additional strip of land thirty feet wide adjoining said right of way on the West, only during the construction of the sewer."

Mr. Tuttle moved that the resolution be adopted as read.

Motion was duly seconded and on vote being taken was carried.

Secretary reported that he had been advised by Messrs. Adams and McGuire that some of the heirs of the Brown estate wanted the same price per foot as was given Hubert Pierson and that others would not fix any figure at which they would sell the right of way.

Mr. Eschenfelder offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 68, belonging to the estate of James Brown, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Speir moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Secretary stated that the Trustees of the Geo. D. Arthur estate would not agree to sell the right of way for less than a dollar and forty cents a foot.

Mr. Speir offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 69, belonging to the estate of Geo. D. Arthur, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Eschenfelder moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Secretary stated that Mrs. N. E. Taylor was unwilling to fix a price at which she would sell the right of way through her property.

Mr. Speir offered the following resolution for adoption:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 73, belonging to Mrs. N. E. Taylor, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Mr. Baumann moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Secretary stated that Vincent M. Julbe had executed the deed for the right of way through his property for the sum of $100.00, which was $25.00 in excess of the amount fixed by the Joint Meeting.

Mr. Tuttle moved that Vincent M. Julbe be paid one hundred dollars for the right of way through his property, designated as Plot No. 55. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that when the meeting adjourned it would adjourn to meet on next Tuesday, February 10th, at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Hamilton F. Kean be paid the same price per lineal foot for the right of way through his property, designated as Plot No. 18, as was awarded to Noah W. Parcell. Motion was duly seconded, and on vote being taken was carried.

Communication from Geo. C. Hand to Mr. Potter was read, stating that he thought it unfair for the Engineer to lay him off as Inspector, inasmuch as the work on the Third Section had not been stopped.

The following communication was read:

"Mr. Francis Speir, Jr.,
"Chairman of Executive Committee.

"Dear Sir:—As you are doubtless aware, all inspectors cannot be retained during the winter. Some of those whose services have been discontinued are men whose work has been so satisfactory that I would like to retain them on the work a sufficient amount of time so that they will not seek other employment. I have therefore deemed it wise to begin to replace men on work not closed down with men who have been idle for some time, and so continue until all good inspectors have been laid off for an equal length of time.

"Among those notified that he would be laid off temporarily was Inspector Hand. I hand herewith a copy of Mr. Hand's letter in reply to my notice, in which he states that he does not think this just, etc., as Summit was entitled to representation on the corps of inspectors. I had not thought it was necessary to take into consideration the residence of the inspectors, but only the character of their service.

"My instructions have been questioned in this instance, and I therefore wish the opinion of the Joint Meeting as to whether they desire the inspectors changed around so that each man whose work has been satisfactory will not suffer any greater loss of em-

ployment by reason of his having been employed on work that happened to be suspended for the winter than the men assigned to work that is continuous during the winter months.

"Very respectfully,

"ALEXANDER POTTER."

Mr. Speir moved that this question of inspectorship should be left to the Engineer with power to lay off or transfer at his discretion.

Mr. Baumann seconded the motion, and on vote being taken was carried.

Mr. Eschenfelder reported that there was a large hole in Marion Avenue where the dirt had settled and that he thought it ought to be filled.

Mr. Potter said he would give the matter his attention and have the hole filled up.

The regular monthly report of the Engineer was read as follows:

"New York, February 5, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I have the honor to present my report for the month of January. During the month the net amount of work done by the contractors was as follows:

Section 1, T. J. Shea, contractor	$ 6,872.08
Section 2, Harrison Construction Co.	3,738.31
Section 3, Costa Construction Co.	2,397.03
Section 4, James P. Hall	2,012.16
Section 5, Earle & Dougherty	332.78
Section 6, Harrison Construction Co.	1,318.95
Total	$16,671.31

"The total amount of work done during the month of December was $22,073.19.

"The approximate amount of work estimated to be done during the month of February is as follows:

Section 1, T. J. Shea	$ 5,000.00
Section 2, Harrison Construction Co.	5,000.00
Section 3, Costa Construction Co.	2,500.00
Section 4, James P. Hall	2,500.00
Section 5, Earle & Dougherty	1,500.00

Section 6, Harrison Construction Co. 2,000.00

Total $18,500.00

"Section 1—Work is progressing satisfactorily on this section and on Section 2. For length, Section 1 is 78 per cent. completed, in amount of work done it is 86 per cent. completed, exclusive of rock yet to be encountered.

"Section 2, in length, is 70 per cent. completed, in amount of work done it is 76 per cent. completed, exclusive of rock yet to be encountered.

"Section 3—Work on the Third Section was also suspended, but at the request of the contractor he has been permitted to proceed under additional conditions to those named in the specifications, among them are the following: That no brick work shall be laid when the thermometer is below 32 degrees Fahrenheit; a bulkhead shall be placed in the finished end of the sewer each night; the sewer shall be covered with at least two feet of dirt as it is finished; the invert shall be covered with hay as soon as it is laid; the brick shall be heated to remove any frost that may be in them.

"The tunnel work on Section 3 is not progressing satisfactorily, and the present methods employed by the contractor may not prove adequate for the proper handling of the work. Little progress has been made in Shaft 1, and Shaft 2 has been abandoned temporarily, pending the installation of a larger pumping plant capable of handling the water that is encountered in the shaft.

"The Joint Meeting will appreciate the difficulties with which we are contending in the tunnel only by a visit to the work itself, and I have fixed upon Monday morning as a time when as many of the Joint Meeting as are able can visit the work and go over as much of the sewer as possible. By meeting at Hilton Hotel in Springfield Avenue at 8 o'clock the tunnel section can be visited and also the rest of the work under construction, and the party return to Newark by noon or a short time thereafter.

"The contractor has asked permission to substitute concrete for the pile foundation under the iron pipe across the Elizabeth Town Water Company's property in Millburn, called for in the plans and specifications. It has recently been demonstrated that the wells of the Water Company, although supposed to be fed from subterranean sources, in reality draw down the surface water whenever pumping is going on. This gives a fluctuating water level which in time may have an injurious effect upon the piles. The drawing down of this water is not an unmixed evil, for by drawing the water out of the ground we have a more stable foundation on which to rest the pipe and its supporting base, whether piles or concrete are used.

"The Jersey City Water Works have recently completed a

steel pipe across the Meadows without any support whatever under the pipe. I would therefore recommend that the contractor be permitted to substitute concrete for piling as called for in the specifications, at no additional cost to the Joint Meeting, provided he specifically agrees to keep the sewer in complete repair, to replace any piers in which there will be any perceptible settlement, and to raise the pipes thus settled, if any, to their proper grade, for one year after the completion and acceptance of the contract.

"Section 4—A small force of men have been kept employed on this section in placing the iron pipe under the street railway tracks and along the Rahway River, and another force is at work across the swamp back of the D., L. & W. yards in South Orange.

"Section 5—Work on this section has been practically abandoned, but the contractors are anxious to again open up in the near future. If the weather continues moderate a force may be started soon on the swampy portion of this section.

"Section 6—The only work on this section is the grading of the roadway called for in the agreement with Whittingham for his right of way. This agreement calls for a roadway thirty feet wide.

"All work now under construction is being well constructed, for additional instructions have been given my assistant engineers and the inspectors to see that all work performed is satisfactorily done and free from the effects of frost. While there is less work going on in the winter time, there is need of more careful supervision of the work under construction.

"I have presented an independent report in connection with the rotation of inspectors on work, to the Executive Committee and beg for instructions in this matter.

"I hand you herewith copies of the monthly estimates of the contractors and also progress map of the work done up to date.

"Respectfully submitted,

"ALEXANDER POTTER."

Mr. Baumann moved that the report be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle reported that he had been advised by the Freeholders that they proposed to pave Grove Street, and that they wanted to have the work pushed as fast as possible so that the street could be paved.

Mr. Baumann stated that the Auditing Committe had not passed the estimate of moneys due the contractors submitted by the Engineer, because there were various items for extra work that were not clear as to what they were for.

Mr. Baumann moved that the Engineer be instructed to present itemized bills showing the charges for extras with the estimates for the work done by the contractors. Motion was duly seconded, and on vote being taken was carried.

Communication from Mr. Riker was read as follows:

"Newark, N. J., Jan. 21, '03.

"Wm. Rollinson, Esq.,
"Secretary.

"Dear Sir:—Upon examining the statute authorizing the construction of the Joint Sewer to determine whether the proposed contract between the Joint Meeting and the City of Newark respecting the completion of the sewer in Lyons Avenue, Irvington could legally be made, I am of the opinion that in view of the fact that the cost of the work will exceed $500.00, it will be necessary to advertise for bids in accordance with the thirty-first section of the act, and that consequently the proposed contract for the City of Newark cannot be lawfully made at this time.

"There is another consideration which should be given its proper weight, namely, that the contract with Earle & Dougherty includes the work in question, and no release from that written contract has been secured from the contractors.

"It may be best for the City of Newark in advertising for the construction of the necessary work within the city limits, to make a provision that the contractor shall also complete the proposed work in Lyons Avenue within the limits of the Town of Irvington, and a special contract be then made between Earle & Dougherty and the city contractor for the doing of this work. This suggestion would relieve the situation from all its embarrassments, and I think it is feasible.

"Very truly yours,
"Adrian Riker."

Mr. Tuttle moved that the communication be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the matter be referred to Mr. Riker and that he be requested to take it up with the city of Newark and Earle & Dougherty, and to report on same to the Joint Meeting.

Communication from Henry C. Keeys was read, stating that his client Alexander Smith had sold various implements now being used by Earle & Dougherty in their work on the sewer to the amount of one hundred and fifty-five dollars, and asked that said sum be held back from the money due the contractors.

Mr. Speir moved that the matter be referred to the Engineer as to the justice of the claim and that he report on same to the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the terminus of the Millburn and Summit Division be fixed as at the junction of the Summit city line and Springfield Avenue. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the recommendation of the Engineer in his report relating to the change in the construction of the sewer through the Elizabeth Town Water Company be referred to the Executive Committee to report on same to the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Thomas R. Smith	$ 73.50
James Farrell	66.50
Moses F. Badgley	28.00
Wm. Welsher	45.50
Theo. W. Hall	45.50
John Hauck	94.50
Herman Schlegel	94.50
Geo. C. Hand	94.50
Chas. E. Derivaux	94.50
James H. Van Houten	94.50
Geo. W. Hayward	94.50
John Wander	94.50
Chas. Campbell	49.00
W. H. Van Iderstine	77.00
P. J. McGuire	61.80
Wm. B. Adams	124.65
Henry Keen & Son	15.00
Noonan Bros.	8.65
Grover Bros.	12.05
Chas. Rust	4.25
S. Leschziner & Co.	54.16
Wm. Rollinson	132.38
Fidelity Trust Co.	380.00

Mr. Eschenfelder moved that the bills of the contractors and the Engineer be laid over until the meeting on Tuesday. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $15,000.00, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities, in the following manner, to wit:

"On the Main Trunk, designated as XA, $5,000.00.

"On the First Division, West Branch, designated as AB, $5,000.00.

"On the Millburn and Summit Branch, designated as BI, $5,000.00.

"And, Resolved further, That the Secretary be instructed to notify the various municipalities of such assessments and the proportion thereof to be paid by each municipality, and further, to notify them to pay said moneys to the Treasurer of the Joint Meeting within twenty days from the 5th day of February, 1903."

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Secretary be directed to get eight files to hold the minutes of the Joint Meeting.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of February 10, 1903.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Potter read the following report:

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—I hand herewith statement of all bills for extra work allowed contractors which were dependent upon for an account for material supplied by them for which they have charged.

"I find that one item on the estimate of Earle & Dougherty has been overpaid and that is for iron pipe used on the river crossing on Springfield Avenue. This error comes about as follows:

"The iron pipe used upon this construction was purchased from P. H. Harrison Company and the bill presented for this pipe was paid by Earle & Dougherty to the amount of $176.00. Knowing that this was excessive, I allowed Earle & Dougherty three-quarters of the amount paid, and informed them at that time that even this amount might be reduced. In the last few

days I took this matter up between Harrison and Earle & Dougherty and have discovered that the Harrison Company overcharged Earle & Dougherty $90.00 for this material. I have made the necessary correction on the approximate estimate of the Fifth Section handed herewith. In this connection I beg to state that every item of the estimates from month to month are subject to correction and I invite the members of the Joint Meeting during the month to study the figures in the estimates and if any item or items appear to them as excessive or incorrect, I will be only too glad to adjust the same, if on investigation the criticism of any such member of the commission appears to be well founded. In work of this magnitude, where the measurements are taken by many persons, errors are liable to creep in and it is my earnest desire to have these estimates just and right down to the minutest detail, and to allow the contractors absolutely nothing but what they are entitled to under their contracts.

"But the mere fact of the contractor through error or oversight being overpaid in any one estimate does not bind the Joint Meeting in any way, as all items comprising the approximate estimates from month to month are open to review until the approval of the final estimates by the Joint Meeting.

"Respectfully submitted,

"ALEXANDER POTTER."

Question was raised as to why the Harrison Construction Co. was allowed forty dollars per thousand for timber used in the construction of the Second Section while only thirty dollars was allowed to the Costa Construction Co. last month for similar material in the Third Section.

Mr. Cox moved that where the price of lumber used in the foundation of the sewer is not stated in the contracts with the contractors that the price be fixed at thirty thousand dollars a thousand feet B M., and further, that the estimates be changed to that effect. Motion was duly seconded, and on vote being taken was carried.

Corrected estimates of money due on work done by the contractors during the month of January, less the 15 per cent. retained as per contracts, were read as follows:

To T. J. Shea, Section 1	$6,872.08
To Harrison Construction Co., Section 2	3,386.00
To Costa Construction Co., Section 3	2,060.94
To James P. Hall, Section 4	2,012.16
To Earle & Dougherty, Section 5	288 11
To Harrison Construction Co., Section 6	1,318.95

Mr. Cox moved that the contractors be paid the money due as per corrected estimates. Motion was duly seconded, and on vote being taken was carried.

Bill of Alexander Potter, for commissions on account of work done as per contract, the sum of $597.69, was read.

Mr. Eschenfelder moved that the bill be paid. Motion was duly seconded and carried.

Bill of Alex. Potter, for extra work in making surveys and maps on the new line of the sewer, in the sum of $429.00, was read.

Mr. Tuttle moved that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Secretary be instructed to have all the Engineer's monthly reports printed that have not already been printed on the minutes. Motion was duly seconded, and on vote being taken was carried.

Secretary reported that since the last meeting Messrs. McGuire and Adams had been to see Mrs. N. E. Taylor and the owners and others interested in the James Brown estate and the estate of George D. Arthur in regard to obtaining the right of way for the sewer and that they had been unable to come to an agreement with them to sell the right of way through said properties.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 73, belonging to Mrs. N. E. Taylor, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 68, belonging to the estate of James Brown, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Glazier moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 69, belonging to the estate of George D. Arthur, that Counsel be directed to take action to bring the matter before a commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

Secretary reported that Clarence D. Myers had presented his bill for counsel fees, as agreed on in the contract with Conrad Weppler, in the sum of seventy-five dollars.

Mr. Cox moved that Mr. Meyers' bill be paid. Motion was duly seconded, and on vote being taken was carried.

Bill of Wm. Allen, in the sum of $40.00, for services rendered as expert in the condemnation of the Potter estate, was read.

Mr. Glazier moved that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of March 5, 1903.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Speir moved that the reading of the minutes be dispensed with and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

The following report was read:

"New York, March 5, 1903.

"Joint Meeting,
"Newark, N. J.
"Gentlemen:—

"I beg to report upon the communication of Mr. Henry C. Keyes, attorney for Alexander Smith, who has presented a bill for material amounting to $155.00, against the firm of Earle & Dougherty.

"I wrote the following letter to Earle & Dougherty, contractors:

"'New York, February 11, 1903.

"'Earle & Dougherty,

"'Irvington, N. J.:

"'Gentlemen:—

"'A bill of Alexander Smith's for supplies and material furnished you in July, 1902, has been referred to me by the Joint Meeting, the claimant having brought the matter to their attention.

"'I beg to call your attention to Clause 22 of your contract which recites the procedure in this particular. As this bill has been previously presented to you, it is incumbent upon me to request you to pay this account or give me a reason why this bill has not been paid, and to notify you that unless this bill is paid, or a good and sufficient reason is given for its non-payment, I will be compelled under your contract to withhold the amount of this bill from your next estimate.

"'Regretting the necessity of writing this letter, I remain,

"'Yours very truly,

"'ALEXANDER POTTER.'

"I have received a reply from them as follows:

"'March 4, 1903.

"'Mr. Alexander Potter,

"'South Orange, N. J.:

"'Dear Sir:—

"'In regard to the bill of Mr. Alexander T. Smith, which was presented to the Joint Sewer Meeting, we beg to say that we only received one article which is referred to on that bill, and for that article we have sent Mr. Smith a check.

"'The balance of the order was never shipped to us until long after it was ordered and we refused to receive it when it was sent.

"'We will say further that there is no bill of any kind that has been presented to us that has not been paid in full.

"'Under the circumstances we must protest against you withholding the amount of the bill.

"'Yours respectfully,

"'EARLE & DOUGHERTY.'

"I also had a conference with Mr. Smith, who claims that the material was shipped to them immediately, but was delayed in transit and was shipped to Elizabeth through some error, lying in Elizabeth some time awaiting disposition on the part of the contractors. I have no further evidence that the contractors ever received any notification as to when this material arrived in Elizabeth.

"I have looked into this matter and find that one hand power derrick has been used upon the work and that the balance of the material, so far as I am able to learn, has never been brought on the work nor been used by the contractor.

"However, as the draft of the contract was prepared by me, I think that it is entirely proper for me to state that the intent of Clause 22 of the contract with Earle & Dougherty was to protect firms supplying tools and material ordered by contractors and used in and upon the work. In this case the contractor claims that the major part of this material did not arrive until some months after the goods were needed upon the work, and that they have not since been used in connection with the construction of this work.

"The contract speaks for itself and therefore the decision of Counsel in the matter should prevail.

"Yours very respectfully,

"ALEXANDER POTTER."

On motion the matter was referred to Counsel.

The regular monthly report of the Engineer was read as follows:

"New York, March 5, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present herewith my report for the month of February. I have presented to the Secretary the estimates of the contractors for the month, from which it will be seen that the net amount due the various contractors is as follows:

Section 1, T. J. Shea	$ 3,674.93
Section 2, Harrison Construction Co.	4,393.04
Section 3, Costa Construction Co.	2,407.60
Section 4, James P. Hall	1,753.00
Section 6, Harrison Construction Co.	197.11
Total	$12,425.68

"The total amount of net estimates for the month of January was $16,671.31, showing that there has been considerable falling off in the amount of work done in February even over January. As you are well aware, the severe snow storm which occurred during the month paralyzed construction work for about two weeks, hence all of the estimates for work during the month are small, and on one contract no work whatever was done.

"The approximate amount of work estimated to be done during the month of March is as follows:

Section 1, T. J. Shea	$ 7,000.00

Section 2, Harrison Construction Co.	7,000.00
Section 3, Costa Construction Co.	5,000.00
Section 4, James P. Hall	3,500.00
Section 5, Earle & Dougherty	3,500.00
Section 6, Harrison Construction Co.	3,000.00
Total	$29,000.00

"Section 1—Contractor Shea has at last encountered considerable quicksand upon his work in the vicinity of Linden and Jersey Avenues on Bayway. This quicksand has been anticipated, as the borings indicated that we would strike it in large quantities for about one thousand or twelve hundred feet at this point.

"The amount of work done on the various sections has been relatively so small that I have not made a percentage estimate of the total amount of work completed up to the end of the month on any section.

"Section 2—The work on this section has proceeded satisfactorily. This contractor has also encountered some treacherous material on the Potter estate, but indications point to the fact that within two or three hundred feet rock will be encountered. On the Kean property the excavation is in rock and is progressing now in a satisfactory manner.

"Section 3—The progress made upon this section has been disappointing. The open work, however, has progressed as well as could be expected under the circumstances. The amount of work accomplished on the tunnel has been practically nothing during the month. The nature of the digging here compels the contractor to feel his way, unless he should decide to treat the problem heroically and establish a plant which, without doubt, would do the work satisfactorily, but which would make it incumbent upon him to spend twice as much as the contract price for this section of his work. This method of procedure he has not at present any idea of adopting, and he anticipates being able yet to devise a method of constructing this work that will cost him somewhere near what he is getting for it.

"Water is being encountered in the tunnel in such quantities that it will be necessary to establish a drain for its permanent relief. This drain if constructed must commence at a point about three thousand feet east of the tunnel, where an outlet can be secured at the lower end. Much thought has been given to the question of these drains, and I would recommend that the contractor be paid for this drain, provided he will guarantee that he will maintain it open until the sewer is constructed through the tunnel. For should it become stopped up before the sewer is completed through the tunnel no permanent benefit is enjoyed by the Joint Meeting.

"The contractor has agreed to furnish all the material and to perform all the labor required by the plan submitted herewith

outside the regular section of a circular sewer for $2.20 a foot. This includes the furnishing and laying of two 8-inch pipes imbedded in concrete deposited in the trench to the full width of the excavation, but no less than 4 inches wide at the springing line on either side of the sewer and 4 inches below the bottom of the outside course of the regular section, with a 4-inch rowlock course of brick in the bottom 24 inches wide. This price does not mean that these drains will cost the amount stated over that which we would otherwise pay, for we know from our experience on Section 3 that it will be necessary to use haunchwalls up to the tunnel and these haunchwalls cost for material used in their construction $1.49 per foot. So that the added cost of these drains is but 71 cents per lineal foot of sewer.

"I would therefore recommend for the good of the permanent construction that this change of plan be adopted, provided the contractor will agree to guarantee that these drains shall be kept open until the completion of the sewer and, second, that he will guarantee that the substitution will not render the Joint Meeting liable for a greater amount than the sum stated, namely, $2.20 for all material and labor outside the regular section from Station 46 to Station 76.

"I beg to call the attention of the Joint Meeting to the fact that no action has been taken on the question of concrete piers for piles specified in the contract for this work over the Elizabeth Town Water Company's property in Millburn.

"Section 4—Work upon this section has not progressed as satisfactorily as it should have done, even when we take into consideration the unfavorable condition of the weather during the month of February. I trust that the contractor will see that it is to his advantage to move along on this section in a little more businesslike manner than he has in the past; otherwise it will be impossible for him to complete the work in the time specified in the contract.

"Section 5—There has been no work done on this section during the month. The contractors, however, started work on the 4th of March and will have three gangs at work by the end of the week. They are also putting a force of men at work clearing up Lyons Avenue, but the horrible condition of the sub-surface of this street, coupled with the fact that the frost is coming out of the ground, makes the task of the contractors a difficult one to secure anything like a permanent street excepting by allowing him a reasonable length of time to restore the street.

"When it is considered that this street has been in process of making for upwards of thirty years, each year a certain amount of macadam and field stones being placed on the streets for the purpose of securing a foundation, it seems to me rather unjust to demand of the contractors that they shall immediately restore this street to the condition in which it was found by them, irre-

spective of the season of the year, when in order to lay the sewer it has been necessary to excavate these streets to the depth of ten or fifteen feet, and a width, in some instances, of the entire distance between the curb lines. While I always invite criticism in every department of the work, I think that the mere fact of the residents along the street being temporarily inconvenienced because of the blockading or unfit condition of the street, is not sufficient warrant for many of the criticisms that have been made.

"Section 6—The only work done upon this section during the month was the grading of the roadway called for in the agreement with Mr. Whittingham in his right of way.

"Since the resumption of the work, I have examined many parts of the sewer on various sections which were likely to have been affected by the frost and find that the sewer is in an exceptionally good condition.

"I beg to report that during the month I have made inquiries among other engineers as to whether or not it is an unusual thing to find that contracts which have been made for specific sums finally cost more than was originally anticipated. While it is well known that upon sewer construction through treacherous material or through rock it is impossible to judge the cost in the beginning, still I thought that some specific cases where the Engineer's estimates and appropriations were greatly exceeded would be of interest.

"In the city of Mobile, Ala., the estimated cost of the work was $198,000 for the construction of ninety-eight miles of sewers. Being limited to an apportionment of $200,000, the work was proceeded with and the $200,000 was consumed when fifty-eight miles of sewer had been constructed, or about seventy per cent. increase in cost.

"In the city of Philadelphia the law prohibits the exceeding of an appropriation for sewer purposes, but I find that in the construction of the Shackamaxim Street sewer, which was to have cost $30.00 per foot, the actual cost was $49.00 per foot. So that while the appropriation for this work was not exceeded, only sixty per cent. of the work was accomplished and the balance of the work held up until some appropriation could be made for its completion.

"On Orthodox Street, in the same city, the sewer to cost $40,000 actually cost $58,000. The sewer near Crescent Creek, Philadelphia, was estimated to cost $25,000, but the lowest bid received was $65,000, the contractors being afraid of the work on account of quicksand, there being no fixed price for the quicksand, or for rock, and the contractors being compelled to take all the chances themselves.

"In the Borough of Bronx and the Borough of Queens many cases can be found where the work has finally cost a large percentage more than was originally contemplated, owing to the inability of

determining beforehand the exact nature of the ground through which the sewer is to be constructed. In New York, where sewers have been constructed from time immemorial and reconstructed, some of them several times, the exact nature of the ground throughout the city has been well defined, so that the fact that the contractors are left to take their own chances as to the material to be encountered does not create a hardship, as the conditions are well known, and therefore cases where the final cost exceeds the contract prices are not many.

"At a meeting of the Board of Works in Newark, Mr. Adam, Engineer of sewers and streets, cited several instances within his knowledge where sewer work actually cost about seventy per cent. more than it was supposed to cost at the time the contract was let.

"On one of the large sewers recently constructed in Philadelphia the borings showed that the sewer would be constructed in coarse gravel, which was supposed to extend down at least two feet below the bottom of the sewer. As a matter of fact the contractor was forced to excavate eleven feet through quicksand, and on account of having no classification of the work, the work was thrown up and the second bids were sixty per cent. higher than the first.

"I cite this case to show that the inaccuracies in the borings upon our work is not unusual. Many instances of inaccuracies in borings can be cited in connection with the Rapid Transit work and also in the borings that have been taken for bridges that have been constructed.

"I attach hereto a report which was written by request to the Newark Board of Works, which I consider to be equally important to the rest of the municipalities in this joint enterprise.

"I present herewith a progress map of the work done during the month and up to the present time. The work done during the month is shown in green, the work done prior to the month of February is shown in red, and the work still remaining to be done is shown in blue.

"Respectfully submitted,

"ALEXANDER POTTER."

Mr. Potter read the following report, which he had made to the Board of Street and Water Commissioners of Newark:

"New York, February 18, 1903.

"Mr. C. V. Baumann,

"Newark, N. J.:

"Dear Sir:—

"I have received over the telephone a communication from Mr. Rollinson as follows: That Mr. Baumann would like a detailed report by Thursday night for presentation to the Board of Works covering the increase in the work above my estimate, and also what my estimate is now for the final completion of the

whole system. The first question can be answered and the second cannot be answered with any degree of precision.

"I do not see how it is possible to give a more explicit explanation of the causes which have tended to increase my estimate than appeared in my report to the Joint Meeting for January, in which I take up all the items which tend to cause the increase over the contract prices. Mr. Rollinson should be able to supply you with a number of printed copies of this report, as it has been printed in the minutes of the Joint Meeting.

"It should be borne in mind by all persons interested in this construction that in the beginning it was not the desire of the Commissioners or the Engineer to fix an upset price for the construction of the work, beyond which no further moneys would be paid. But it was the desire to so arrange the contract and specifications that the contractors would receive just compensation for any difficulties or unforeseen expense that they might during the progress of the work encounter. With this large element of chance removed the bids of the contractors were very much lower for work such as we have to encounter and the original estimate of cost lower because these estimates were given with the distinct understanding that additional compensation would be paid in the event of unforeseen conditions arising. In many instances quantities were not given at all because it was impossible to state with any degree of accuracy the quantity that might be anticipated. So prices were fixed or have since been fixed, for such items which must of necessity increase the final cost of the system beyond the original contract prices stated in the bids, when the contracts were let. All quicksand, for instance, is to be paid for at the rate of $1.25 per cubic yard; timber in foundation is to be paid for at the rate of $30.00 per thousand; gravel and foundation is to be paid for at the rate of $1.50 per cubic yard.

"The encountering of quicksand increases the cost of the work not only by the payment for quicksand encountered, but also by the additional sheeting required and additional timber in foundation. Under drains have also to be paid for. The quantities of all these items in the beginning of the work of this magnitude it is impossible to determine. The meeting of quicksand in sewer construction increases the cost of work considerably on account of the necessity of building brick haunches under the regular section. It is impossible to estimate the quantity of this brick work that will be needed, but what was done at the beginning of the work was to secure or fix prices to which the contractor would be bound whenever and wherever the extra work must be done.

"It must also be remembered that changes have been made in the line and grade of the work, and that these changes were considered possible from the beginning is shown by recalling the fact that a resolution was passed authorizing the Secretary to stamp all maps and plans which were submitted to bidders for inspec-

tion with a statement that the Joint Meeting reserved the right to change the line and grade of any sewer to any extent whatever and pay for such changes only in accordance with the schedule of prices which would be fixed by the contract. Changes have been made necessary from the original plans prepared in a large number of instances. Some in order to secure more readily the easements of the land over which the sewer was to pass, with which we have had much difficulty, and other changes have been made to provide for the admission of additional territory.

"It will be here remembered that since the estimates were made the sewers have been increased to allow for the admission of Morristown, and as Morristown has not yet made any definite agreement that it will come in and occupy a certain percentage of the sewer, it has been necessary to build all the lateral sewers sufficiently large to utilize this extra capacity that each one of the contributing municipalities will have in the main trunk sewer in case Morristown does not come in. This decision about the laterals was put off as long as possible pending a positive decision from Morristown, but you will readily agree that it would be folly to provide a larger capacity in the outlet sewer than the branch sewers could carry to it.

"The increase in size could not be accomplished without a corresponding increase in cost.

"If Morristown does not come in the original municipalities will have an increased capacity which will prove a valuable asset. If Morristown does come in it will reimburse the original municipalities for the extra expense they are now incurring.

"My original estimate of $400,000 for the cost of the work did not include any cost whatever for quicksand encountered, nor for material and work which was conditioned upon meeting quicksand in construction. Since this estimate was prepared the size of the entire sewer has been changed as stated above for the admission of Morristown, so that my estimate for this increased size since the increase was made instead of being $400,000, would have been $490,000, plus whatever additions there might be made, during the progress of the work on account of quicksand and corelative expenses in connection therewith.

"The total amount of the contracts let upon the Joint Trunk Sewer is $468,072.85, which amount, like the estimate made upon the work, does not include any amount whatever for quicksand or for extra brickwork or material and labor necessary, when quicksand is encountered or other work.

"Up to January 1, $261,051.17 worth of work had been accomplished, of which $46,573.65 was for items enumerated in my January report. If this same proportion holds true until the completion of the work, the original contract prices will be increased approximately twenty-one per cent. on the entire work.

"Very respectfully,

"Alexander Potter."

Mr. Jones moved that the monthly report of the Engineer be received and placed on file, and further, that this report, as well as the report to the Board of Street and Water Commissioners of Newark be spread upon the minutes. Motion was duly seconded, and on vote being taken was carried.

Recommendations in Engineer's report were taken up as follows:

Recommendation in regard to Underdrain in Third Section.—Mr. Speir moved that three thousand feet of underdrains be constructed in that portion of the Third Section between the tunnel and the brook and more particularly described as lying between Stations 76 and 46, in the manner recommended by the Engineer in his report, and that this change in construction be adopted by the Joint Meeting in a manner meeting with the approval of Counsel as to procedure. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker said it was merely a question of what the Joint Meeting wuold want in the way of a guarantee, but that to have any effect it should be reduced to a contract in writing and formally approved by the surety of the contractor before execution.

Question of substituting Concrete Piers for Piles recommended in Engineer's February Report.—Mr. Cox moved that the change in the construction of the sewer in the Third Section through property of the Elizabeth Town Water Company from wooden piling to concrete supports of a depth of four feet, as recommended by the Engineer, be approved, upon condition that the contractor enter into an agreement guaranteeing the permanency of the construction so substituted for a period of two years from the acceptance of the sewer and to substitute the piling specified in the contract in case the substituted construction shall be unsatisfactory to the Joint Meeting, and upon the further condition that the surety on the contractor's bond approve the change and the contract is approved by Counsel.

Motion was duly seconded, and on vote being taken was carried.

Counsel reported that in the matter of the claim of Alexander Smith against Earle & Dougherty, which had been referred to him, that inasmuch as the Engineer seemed satisfied as to the justness of the claim, but had not determined the exact amount

due from Earle & Dougherty, that he would recommend that the whole amount of the claim, to wit, $155.00, be withheld from any moneys due Earle & Dougherty until the Engineer had satisfied himself as to the amount due from the contractors.

Mr. Glazier moved that one hundred and fifty-five dollars claimed by Alexander Smith for materials furnished be withheld from any moneys due Earle & Dougherty until the Engineer had satisfied himself by further conference with the contractors as to the amount of money owed by Earle & Dougherty to Alexander Smith. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved that the Engineer be instructed to have the work on Section 5 pushed as fast as possible. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker said that in view of the criticisms that had appeared in the papers relative to the construction of the sewer in Lyons Avenue, that he would suggest that the Joint Meeting take steps to have the charges investigated and stop all further comment in the matter.

Mr. Eschenfelder moved that the Engineer of the Joint Meeting, the Engineer of the city of Newark and the Engineer of the town of Irvington be directed to make an examination of the sewer in Lyons Avenue and to make a joint report on same to the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Cox moved that the Engineer be instructed to have the work on Sections 3 and 6 pushed as fast as possible. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Profile Map, submitted by the Engineer, showing the relocation and change in grade line of the First and Second Sections, be approved and the changes be ratified and confirmed, and further, that the map be placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir said that in view of the fact that the bills introduced by the Joint Meeting had passed the Legislature that he would move that Counsel be requested to draw the necessary resolutions to be passed by the various municipal boards. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Joint Meeting,
"Newark, N. J.
"Gentlemen:—

"We have received our check for January estimate; also a copy of the Engineer's estimate, and we notice that you have made a deduction of ten dollars per M. feet on foundation timber used on Section 2, changing the rate from $40.00 to $30.00.

"Under the terms of our contract and specifications, the Engineer is authorized to fix the rate of compensation for any work not covered by the contract. A price of $40.00 has been fixed and we have been paid at that rate from the commencement of the work up until the present time.

"We expect to be paid for all foundation lumber used up to the first of this month at $40.00 per M., the rate we have been getting, and if we are to accept a new rate from now on, we should have a rate agreed upon.

"We trust the amount will be paid with our next estimate.

"Respectfully yours,
"The Harrison Construction Co.,
"H. L. Harrison, Pres."

The clause in the contract on the point in question was read.

Mr. Riker said that under the contract the Joint Meeting made the Engineer its agent, and that his agreement with the contractor that he should receive $40.00 per thousand for timber used in foundation was binding to the Joint Meeting, and that legally the contractor should be paid at the rate of $40.00 per thousand feet for timber used up to the date of the resolution fixing the new rate.

Mr. Speir moved that the Harrison Construction Co. be paid at the rate of $40.00 per thousand for timber used in foundation of the Second Section of the sewer, up to the time of the passage of the resolution fixing the rate at $30.00 per thousand feet. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir said that he had been advised by Mr. Rollinson that he would not in the future be able to devote his entire time to the Joint Meeting.

On being called on Mr. Rollinson said it was true, that he had accepted a business position which would prevent his attending to the duties of the office during the day time, but that he would be free to attend the meetings and keep the minutes, etc., and would employ an assistant at his own expense to represent

him in the office during the day time if same were satisfactory to the Joint Meeting.

Mr. Speir moved that the Secretary be not required to devote his entire time to the business of the Joint Meeting, provided he employed an assistant, at his own expense, to represent him during his absence. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Francis Speir, Jr.,
"South Orange, N. J.:
"Dear Sir:—

"I notice that the sewer builders have not put any sewer inlets on the Cory tract. You will notice by reference to the contract Mr. Cory made, that there were to be three inlets on this tract in the 930 feet right of way. Will you look into this and see that the three inlets are put in, besides those at Parker and Jefferson Streets.

"Yours truly,
"Chas. H. Taylor."

Mr. Eschenfelder moved that the communication be received and that the matter be referred to the Engineer. Motion was duly seconded, and on vote being taken was carried.

On motion, the remaining communications were referred to the Executive Committee.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

John Wander	$	70.00
Wm. Welsher		24.50
Theo. W. Hall		56.00
Geo. C. Hand		42.00
Chas. Campbell		56.00
Chas. E. Derivaux		28.00
James Farrell		84.00
Herman Schlegel		42.00
Thos. R. Smith		80.50
John Haucks		84.00
James H. Van Houten		56.00
G. W. Hayward		28.00
W. H. Van Iderstine		70.00
Edward F. Little		7.50
Wm. B. Adams		122.55
P. J. McGuire		59.70

Henry Ernst	20.00
S. Leschziner & Co.	54.16
Wm. Rollinson	125.00
S. M. Davy	5.90
Orange Journal Publishing Co.	53.55
N. Y. & N. J. Telephone Co.	21.65
T. J. Shea	3,674.93
Harrison Construction Co.	4,745.35
Costa Construction Co.	2,407.60
James P. Hall	1,753.00
Harrison Construction Co.	197.11
Alexander Potter	465.97

Mr. Eschenfelder offered the following resolution for adoption:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $30,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

"On the Main Trunk, designated as XA, $15,000.00.

"On the First Division, West Branch, designated as AB, $5,000.00.

"On the Second and Third Divisions, West Branch, designated as BKL, $5,000.00.

"On the East Branch, or branch sewer, designated as AQT, $5,000.00.

"And, Resolved, further, That the Secretary be directed to give notice to the various municipalities of said assessment and the proportion thereof to be paid by each municipality, and further, that he notify them to pay said moneys to the Treasurer of the Joint Meeting within twenty days from the 5th day of March, 1903."

Mr. Speir moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle moved that the services of Mr. McGuire as agent on rights of way be dispensed with after to-night. Motion was duly seconded, and on vote being taken was carried.

On motion, the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of April 9, 1903.

On roll being called, it was found that a majority of the municipalities were represented.

Mr. Speir moved that in the absence of Mr. Glorieux, the Permanent Chairman, that Mr. Glazier take the chair. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

The following recommendations of the Executive Committee were read:

"Recommended that Mr. W. M. Brown be retained by the Joint Meeting as Consulting Engineer, with the understanding that his charge should not exceed $250, and that he make a report in writing suggesting the best method of construction to expedite the progress of the work on the sewer."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being atken was carried.

The following report of the Engineer and communication of W. M. Brown were taken up:

"New York, April 2, 1903.

"Joint Meeting,
"Newark, N. J.
"Gentlemen:——

"The contractor on the Third Section is meeting greater difficulties than anticipated and the progress made is entirely unsatisfactory. While the nature of the ground is responsible for the slow progress, still the contractor has not pushed the work. As the construction of this tunnel is the vital issue so far as the sewerage of Summit, Millburn, South Orange and West Orange is concerned, some definite recommendation should be made concerning this work and the intentions of the contractor known at once. The rate of progress made so far would, if continued, insure the completion of the tunnel in fifteen years.

"The importance of this question, and the interests involved are so great, that I hesitate to make recommendations on my own initiative without advice from some other consulting engineer who has been confronted with similar conditions. To this end I have been in communication with Mr. W. M. Brown, Chief Engineer of the Sewers of the Metropolitan District of Boston, who has constructed the largest trunk sewer ever built. Mr. Brown has agreed to visit the work on Saturday of this week and have his

report ready early the following week. I attach hereto Mr Brown's letter.

"Another question in relation to the tunnel which should be discussed is, if the contractor finds it more economical to excavate for his tunnel a larger opening than is necessary for the size of the sewer to be built, whether or not we should take advantage of the opening, and by a comparatively small additional expenditure for extra brickwork increase the size of the sewer.

"Another question which has given me some thought, and which I should like to refer to the consulting engineer, is the method of crossing the Rahway River. The present plan contemplates crossing the river at an elevation of eighteen inches above normal level of the water in the river. During freshets the land above our crossing is flooded to a depth of three or four feet. The construction of our sewer at the grade indicated will not relieve these conditions and the existence of this pipe may in the future be held responsible for all overflow. I would like this question, of whether the present plan should be adhered to or whether an inverted syphon should be built under the river, reported upon by the consulting engineer.

"I beg to call your attention to the fact that I have not been forcing the contractors to proceed with the work of constructing the sewers through Vailsburg because, as is well known, the Joint Trunk Sewer forms the backbone of the entire Vailsburg system, and the design of the local work must be made in conformity to these sewers. As is well known, no engineer has yet been appointed in Vailsburg, and it would be a great mistake to go ahead with the construction of this sewer and afford an opportunity to the engineer who has charge of the design of the local sewers in Vailsburg to complain that the Joint Sewers were not of sufficient depth to afford satisfactory sewerage facilities for the Borough. No two engineers agree as to what constitutes a proper design as no two engineers view matters from the same standpoint. Unless this matter is settled in the near future it will be necessary for us to proceed with the construction work, for it would not be wise to give the contractor any ground for saying that he has been retarded on this work.

"Respectfully submitted,

"ALEXANDER POTTER."

"906 Pemberton Building,
"Boston, Mass., March 28, 1903.

"Alexander Potter, Esq.,
"Consulting Engineer,
"150 Nassau Street,
"New York City.

"Dear Sir:

"In reply to your communication of Mar. 27th, asking if I

would come to New York and view your work, and report as to what, in my opinion, might be done to facilitate the work at the location where your contractor is having difficulty, I would say that I could come to New York, Friday night, arriving there Saturday, April 4, and could devote that day to looking over your work, and would forward you a written statement in relation to it on Monday, the 6th.

"My charge for this service would be $250.00, which would include $50.00 for expenses, $100.00 for study, and $100.00 for the report. If you desire to have me do this for you, it will be necessary for you to let me know at an early date, so that I can arrange matters in condition to leave my work here: say not later than Wednesday, April 1st.

"Yours respectfully,

"Wm. M. Brown."

Mr. Speir moved that the report and communication be received and spread on the minutes. Motion was duly seconded, and on vote being taken was carried.

Recommendation of the Executive Committee was read as follows:

"Recommended that John D. Meeker be paid $275 for the right of way through his property."

It was moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended that Counsel be authorized to settle with Mrs. N. E. Taylor for the right of way through her property designated as Plot No. 69, for an amount not exceeding $300."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended that the appointment of Timothy Barrett, of South Orange, and Martin Landon, of West Orange, as inspectors for the Joint Meeting, be ratified and confirmed."

It was moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended that the estate of Geo. D. Arthur be paid $600 for the right of way through the property designated as Plot No. 69."

Mr. Speir moved that the recommendation be concurred in. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved the adoption of the following resolution:

"Be it Resolved, By the Joint Meeting of the municipalities constructing with each other a Joint Trunk or Outlet Sewer to tide water, that the said Joint Meeting deems it necessary and has determined to take and appropriate for the purpose of said improvement the following described lands, real estate and interest therein, shown on map on file in the office of the Joint Meeting, showing the location of the Joint Outlet Sewer for South Orange, N. J., and adjacent municipalities, prepared by Alexander Potter, Chief Engineer, and entitled Millburn and Summit Division, Millburn Avenue to Summit line, belonging to the following named owners:

"Plot No. 91, belonging to Owen McCabe estate, the right to build, construct and maintain within a strip of land 15 feet wide on said Joint Outlet Sewer and designated as Plot No. 91, on said map entitled Millburn and Summit Division, Millburn Avenue to Summit line, and described as follows:

"Beginning at a point in the line dividing the property now or formerly of Mary Jane Smith, on the east, and that of the estate of Owen McCabe, on the west, said point being two hundred and fifty-four (254) feet from the northeast corner of said estate of Owen McCabe, as measured along the east property line; thence south eighty-five degrees three minutes west, two hundred and fifty-three and fifty-hundredths (253.50) feet to a point; thence north sixty-one degrees and forty-five minutes west, five hundred and sixty-four and seventy-hundredths (564.70) feet to a point; thence south sixty-two degrees and thirty-eight minutes west, two hundred and seventy-nine and forty-hundredths (279.40) feet to a point in the line dividing the property of said estate of Owen McCabe on the east, and the property of Walton C. Whittingham on the west, said last named point being distant about four hundred and ninety (490) feet north of the center of the east branch of the Rahway River, measured along said estate of Owen McCabe's west property line. Together with the use of an additional strip of land 30 feet wide on the southwest side, only during the construction of the sewer."

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the Joint Meeting having failed to agree with the owners, occupants and others interested in the price to be paid for the right of way through Plot No. 91, belonging to the estate of Owen McCabe, that Counsel take action to bring the

matter before a commission to condemn the right of way through said property."

Motion was duly seconded, and on vote being taken was carried.

The regular monthly report of the Engineer was read as follows:

"New York, April 9, 1903.

"Joint Meeting,
"Newark, N. J.
"Gentlemen:—

"I beg to present herewith my report for the month of March. A trip to Boston, to which I refer in a separate report, precluded the possibility of getting out the estimates in advance of this meeting for the inspection of the Executive Committee.

"The estimates presented herewith show that the net amount due to the contractors on the various sections is as follows:

Section 1, T. J. Shea	$ 8,634.11
Section 2, Harrison Construction Company	6,825.23
Section 3, Costa Construction Company	11,142.27
Section 4, James P. Hall	5,895.29
Section 5, Earle & Dougherty	3,639.59
Section 6, Harrison Construction Company	6,380.61
Making a total of	$42,517.10

"The total amount of the February estimates was $12,425.68. The approximate amount of work estimated to be done during the month of April is as follows:

Section 1, T. J. Shea	$ 9,500.00
Section 2, Harrison Construction Company	8,000.00
Section 3, Costa Construction Company	9,000.00
Section 4, James P. Hall	7,000.00
Section 5, Earle & Dougherty	5,000.00
Section 6, Harrison Construction Company	7,000.00
Total	$45,500.00

"Section 1, T. J. Shea, Contractor.—Work on this section has not progressed at the average rate of speed owing to material encountered. Quicksands are retarding and increasing the cost of this work. But little rock was encountered during the month. It is now estimated that this section should be completed in June.

"Section 2, Harrison Construction Company, Contractors.—Much difficult sewer construction was encountered upon this section. Through the Kean property the rock suddenly disappeared and treacherous quicksand was encountered in place of it. The

opening on the Potter property continues good, with little rock. This work will be completed about the same time as the First Section.

"Section 3, Costa Construction Company, Contractors.—Work on this section outside the tunnel has progressed satisfactorily considering the character of the excavation encountered. The question of the progress on the tunnel is treated in a separate report.

"Section 4, James P. Hall, Contractor.—The progress on this section during the month was fair. The month marked the completion of the sewer under the Rahway River at South Orange Avenue. The work was executed without accident to property or person. This work will probably be completed on time.

"Section 5, Earle & Dougherty, Contractors.—The contractors on this section have had a slight respite from serious trouble, although their work has by no means been clear sailing. It is impossible to say when work will be completed on this section, but not before September or October.

"Section 6, Harrison Construction Company, Contractors.—Progress on this section is satisfactory. The contractors are retarded because the right of way has not been obtained from the McCabe estate. At the request of Mr. Riker, I made a survey of the McCabe property from original deeds. These deeds were vague and much time was required to straighten out this survey.

"I enclose a bill for services for this survey, amounting to $35.00, as this is for services strictly outside the requirements of my contract.

"The branch of this section towards South Orange will be completed this month.

"I present herewith a progress map showing work done up to the end of March, and also a bill for services in conformity to contract. I also present herewith a plan of the crossing of the Elizabethtown Water Company's property, showing the concrete piers to be constructed in accordance with the change decided upon with the contractors.

"Respectfully submitted,

"Alexander Potter."

Mr. Speir moved that the report be received and spread on the minutes. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter submitted plan showing the location of the iron pipe sewer through the land of the Elizabethtown Water Company, and the change in shape of the concrete piers.

Mr. Speir moved that the recommendation of the Engineer relative to the change in the concrete piers for the iron pipe

sewer through the property of the Elizabethtown Water Company be concurred in and that the sewer be constructed in compliance with the plan submitted by him. Motion was duly seconded, and on vote being taken was carried.

Secretary read proposed contract between the D., L. & W. R. R. and the Joint Meeting for the right of way through their property in South Orange.

Mr. Speir moved that the agreement be referred to Counsel of the Joint Meeting and in the event of his approving of same that the Permanent Chairman and Secretary be authorized to execute same for the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

The following report was read:

"Special Report on Examination and Inspection Made with Consulting Engineer William M. Brown.

"April 9, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"In compliance with the decision of the Executive Committee, on Saturday last, I had Mr. W. M. Brown, of Boston, Mass., Chief Engineer of the Metropolitan Sewerage and Water Board of Boston, Mass., inspect the work of construction, examine the plans and estimates of cost and contract prices, and with him and Mr. Bassett devoted the major portion of our time to an examination of the tunnel portion of the Third Section.

"On Tuesday of this week, in company with Mr. Bassett, I visited Boston for the purpose of examining constructions similar to our own, and while we examined some difficult and costly pieces of tunnel construction, we saw nothing where the exact conditions we are encountering were duplicated. Perhaps the most striking thing that was impressed upon us, more especially upon the contractor, was that he was up against a pretty tough proposition.

"Mr. Brown's report is as follows:

"Pemberton Building,
"Boston, Mass., April 8, 1903.

"Alexander Potter,
"Consulting Engineer,
"150 Nassau Street,
"New York City.

"Dear Sir:—

"As requested in your communication of March 27th, I visited South Orange, on Saturday, April 4th, and at your office at

that point examined maps and studies for a 'Tide Water Sewer for South Orange, N. J., and Adjacent Municipalities.' I examined the work of construction in that vicinity. A careful examination was also made of the tunnel work on Section 3, near Headley Town, and of special work at Rahway River and Elizabethtown Water Company's land.

"Your project for the sanitary drainage of this group of municipalities is well conceived and is being rapidly, economically and satisfactorily executed. From your records it appears that the contract price for the whole work approximates $475,000, and that the incidental and contingent costs which always accompany contracts of this magnitude and character will approximate $100,000, giving a gross total for the complete work of $575,000.

"The preliminary estimate for the work was $500,000, an advance of 15 per cent. This is a more satisfactory record than I have attained in my own work or has been attained in similar work in this vicinity. The Neponset Valley Metropolitan System cost $800,000, the preliminary estimate for which was about $600,000. The North Metropolitan System cost approximately $5,250,000, the preliminary estimate for which was $4,200,000. The Metropolitan High Level Gravity Sewer for the relief of the Charles and Neponset Valley Systems, now in process of construction, will cost $5,600,000, the preliminary estimate for which was $4,600,000.

"Your records indicate that the trunk sewer has a total length of 117,000 lineal feet or about 22 miles. It appears you have completed about 62,000 lineal feet or approximately 12 miles in one year. This is a much more rapid rate of construction than attained on Metropolitan Sewer Works in this vicinity. The Metropolitan Neponset Valley Trunk Sewer, which traverses and provides for communities much like your district, is about 12 miles in length and the construction extended over a period of three years. The Metropolitan Charles River main sewer, much like your projected main, is about eight miles in length and the construction extended over a period of something like two years.

"The tunnel work on Section 3, near Headley Town, was the only location where substantial and satisfactory progress was not found. The present contractor is advancing the open cut work at the southerly end of the section at the rate of about 400 feet per month, which insures completion of this portion of the section early in the present season. The tunnel as projected is 3,000 feet in length and provides for a circular sewer 38 inches in diameter. Shaft No. 1, in the street at the southerly end of the tunnel, has been excavated to grade and headings in both directions started. No substantial progress has been made in either heading during the three or four months that the headings have been worked. About 30 feet has been driven in both directions, but it seems doubtful if the tunnel section as driven is sufficient in line and cross section to receive the projected sewer. It will be best on

the south side of this shaft to open cut the work to near the shaft location. The excavation at this point will be about 35 feet deep, at which depth open cutting is usually preferable to tunneling unless the excavation is specially favorable to tunnel work.

"The excavation at this shaft is in sand, gravel and clay with a mixture of boulders of considerable size. The result is, earth that does not give up ground water freely and will require long continued pumping to bleed sufficiently to overcome the sloppy and moving condition at the headings. The spring rains and floods also aggravate the present water condition. The boulders found in the excavation occasion considerable difficulty in placing the timber lining. The contractor and his Italian laborers are not skilled in tunnel work where such strenuous conditions are found. The result of the severe earth conditions and unskilled labor is the expenditure of large sums of money with no practical result. The present shaft should be lowered four or five feet and the water levels maintained by rotary or piston pumps at least three feet below the headings. The tunnel headings as driven are too small to admit of economical working. If the sewer should be increased in diameter say to 38x60 inches this would give a heading of sufficient size to handle economically. This increase in sewer capacity would be of great future value to the contributing communities and you would be entirely justified, under the conditions, in urging most strenuously the board to make a more than ordinary provision for the future, in passing this difficult and costly point in construction. This enlarged section for the tunnel if adopted should be extended through that section of the open cut south of the tunnel where the depth approximates 35 feet say for a length of 200 feet. From the indication of the borings this condition of excavation at shaft No. 1 extends towards shaft No. 2 for a length of probably 300 feet. A mining foreman skilled in handling bad earth with a corps of skilled miners should be secured for this work and progress of about 5 feet per day may safely be anticipated if the headings are worked continuously day and night as they should be. This construction on the lines above suggested should cost including masonry lining not less than $25 or more than $30 per linear foot. If the contractor does not secure the necessary plant and skilled labor for this work, it will be necessary for yourself or the board to do so, as present methods are accomplishing nothing at large cost. At shaft No. 2 the excavation at the date of my visit had advanced to a depth of 23 feet in sand and gravel which yielded water freely. This shaft should be sunk as rapidly as possible and the ground waters taken down and permanently maintained during the construction of the work at a depth of three or four feet below the grade of the headings. The drainage area tributary to the shaft is probably large and may involve pumping a million gallons per day or more. The lowering

of the ground water levels at this location will undoubtedly materially improve the conditions at shaft No. 1. The cost of driving the tunnel in the strata as found at shaft No. 2 will not sensibly vary from estimate named for shaft No. 1.

"Phenomenal results are sometimes obtained by the application of the pneumatic processes to tunnel work of this character. This process could be safely applied to your work and I am of the opinion that it would reduce the time of construction and it might somewhat reduce the cost. It should only be attempted under the direction of a foreman or superintendent expert in this class of work.

"The project for crossing the Rahway River with two lines of 27-inch pipe instead of one of larger diameter is desirable because of less obstruction offered to the flood conditions of the river. An area capable of providing for the flood conditions should be maintained below the pipe by considerably widening the normal channel of the river at this point. There is no reasonable objection to treatment proposed at the Elizabethtown Water Company's land provided competent areas for passing floods below the pipe are made. The pipes at both points will be required to be securely anchored.

"Yours respectfully,

"Wm. M. Brown."

"The estimate of $100,000 additional cost does not include any expense for increase in size in the tunnel section, if same should be determined upon.

"Mr. Brown's report speaks for itself and I would recommend, if any more expensive change of method is adopted, that the sewer be increased to the size suggested by him. I do not believe that this increased size should by any means be made the basis of releasing the contractor of the responsibility of his present contract. In such an event I believe it would be the part of wisdom for the board to relieve the present contractor entirely and give the work first hand to some one who is skilled in this special class of construction.

"The contractor informs me that he has now made arrangements with some ten Austrian miners who are skilled in this class of work, who are to start work there to-morrow, continuing the old open tunnel method, but skilled labor alone is not sufficient, competent specialized supervision is also necessary.

"It is the intention of the contractor to proceed with the work along the basis already laid down and push the completion of shaft No. 2 and No. 5, to determine more definitely the probable nature of the excavation. It is his further intention as soon as this is determined, to bring upon the work an expert tunnel man, one who himself conducts the actual operation of the work. Until then no definite recommendation can be made, as the employment of the

skilled Austrian miners is in conformity to the first suggestion of the consulting engineer.

"To adopt the size suggested by Mr. Brown increases the area of the sewer 75 per cent., with an increase in amount of brick work of 33 per cent., and of excavation a like amount.

"I would suggest that when the meeting is adjourned it be adjourned to two weeks from to-day to receive any report that might then be made concerning this matter.

"Respectfully submitted,

"Alexander Potter."

Mr. Speir moved that the report be received and spread on the minutes. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Mr. Brown be paid the $250 for services rendered as consulting engineer. Motion was duly seconded, and on vote being taken was carried.

It was moved that when the meeting adjourned it would adjourn to meet in two weeks from to-night. Motion was duly seconded, and on vote bing taken was carried.

Mr. Speir moved that Mr. Jones of Summit be appointed to fill the vacancy of the Auditing Committee. Motion was duly seconded, and on vote being taken was carried.

Secretary submitted a proposed contract which he had received from the Pennsylvania R. R. Co. relative to the sewer passing under the railroad.

Mr. Speir moved that the proposed contract with the United New Jersey Railroad & Canal Co. be referred to Counsel, and on his approving of same, that the Permanent Chairman and Secretary be authorized to execute the contract for the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

The claim of W. A. Manda, in the sum of $304, for damages sustained during the construction of the sewer through his premises, was presented.

It was moved that the claim of Mr. Manda be referred to Counsel to take up with Mr. Manda and further to determine as to whether the Joint Meeting or the contractor is liable for the damages claimed. Motion was duly seconded, and on vote being taken was carried.

The following bills, which had been passed by the Auditing Committee, were read:

S. Leschziner & Co.	$ 54.16
A. Eschenfelder	52.50
Chas. W. Cox	50.83
Wm. Rollinson	133.09
Wm. B. Adams	158.50
Jas. H. Van Houten	77.00
John Hauck	91.00
Herman Schlegel	80.50
Chas. E. Deriveaux	59.50
John Wander	91.00
Timothy Barrett	38.50
Wm. Welsher	80.50
Theo. W. Hall	91.00
Wm. Van Iderstine	91.00
Geo. C. Hand	91.00
G. W. Hayward	49.00
James Farrell	91.00
Thos. R. Smith	91.00
Chas. Campbell	91.00
Alex. Potter	35.00
Sarah M. Davy	3.95
Orange Journal Publishing Co.	18.20
Grover Bros.	7.10
Noonan Bros.	20.00
Chas. Rust	21.75
Alexander Potter	1,420.10
Harrison Construction Co.	6,825.23
T. J. Shea	8,634.11
James P. Hall	5,895.29
Earle & Dougherty	3,639.59
Harrison Construction Co.	6,380.61
Costa Construction Co.	6,142.27
Costa Construction Co.	5,000.00

The Treasurer stated that he had sufficient money on hand to pay all the bills with the exception of the additional $5,000 on Costa Construction Co.'s estimate for iron pipe.

It was moved that the bills after being sworn to be paid with the exception of the $5,000 for iron pipe included in the Costa Construction Co.'s bill, which said sum should be paid at the convenience of the Treasurer. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meet-

ing the sum of $65,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

"On the Main Trunk, designated as XA, $25,000.

"On the East Branch or Branch Sewer, designated as AQT, $5,000.

"On the First Division, West Branch, designated as AB, $15,000.

"On the Second and Third Divisions, West Branch, designated as BKL, $10,000.

"On the Summit and Millburn Division, designated as BI, $10,000.

"And further, That the Secretary be directed to give notice to the various municipalities of said assessment and the proportion to be paid by each, and further that the said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the 9th day of April, 1903."

Motion was duly seconded, and on vote being taken was carried.

Mr. Maybaum, Mayor of Vailsburg, with the permission of the chair, asked the Engineer some questions relative to the construction of the sewer in Vailsburg.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of April 23, 1903.

On roll being called it was found that a majority of the municipalities were represented.

On motion, the reading of the minutes of the previous meeting was dispensed with.

The following recommendation of the Engineer was read:

"New York, April 23, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg leave to make the following recommendations concerning the construction of the sewer through the tunnel portion of Section No. 3:

"The present plan of driving the tunnel will be abandoned and the pneumatic process with shield adopted. The cost of the sewer to the Joint Meeting at the size called for in the specification is $10.50 per lineal foot, and with the timber that must be left in and the underdrains the cost will be brought to $14.50.

"By the adoption of the pneumatic process the sewer must be built as the material is excavated. This is impossible with a 38-inch sewer. The smallest sewer that can be built to allow the passage of material to and from the heading through the finished sewer is 48-inch. The carrying capacity of a 48-inch sewer is 80 per cent. greater than that of the 38-inch. The contractor agrees to accept $17.00 per foot for a 48-inch sewer to cover all expenses whatsoever, timber, drains, etc., or $2.50 per foot more than it would have cost if the present plan was successful.

"Mr. Brown in his report states that the work would be worth from $25 to $30 per foot, and unequivocally endorses the recommendation in my letter of April 2nd, that we should take advantage of the larger opening the contractor is forced to make to handle the tunnel and by a comparatively small additional cost for brick work, materially increase the size of the sewer.

The recommendation increases the cost of the tunnel 17 per cent. and increases the carrying capacity of the sewer 80 per cent., a wise provision if necessary at all.

"The sewer at present is sufficient for all needs of the district for many years to come, but when it is required this 80 per cent. increase could not then be secured except at a cost of about $20.00 per foot, for it is safe to say that no sewer could be duplicated at a less figure than this. We are, therefore, investing $2.50 now to save $20.00 in the future. This should appeal to every one as right and proper.

"I unqualifiedly make the recommendation that the increase in size be adopted.

"Respectfully submitted.

"Alexander Potter."

Mr. Tuttle moved that the report be received. Motion was duly seconded, and on vote being taken was carried.

Mr. Bassett, representing the Costa Construction Company, on being called on, said that the $17.00 a running foot in the proposed amendment to the contract would cover everything, including all extras whatsoever. That while it would appear at first sight that this was an increase of $7,500 over the contract price, still when the extras allowed under the contract for quicksand and timber, etc., were taken into consideration, and further that the new method would do away with the necessity of building two manholes, the final cost of construction would very nearly reach his present figure of $17.00 a running foot, and might if the conditions proved unfavorable exceed that amount. Mr. Basset further stated that by working by the pneumatic process, he would guarantee the completion of the work by January 1, 1904.

Mr. Speir asked Counsel as to the legality of the proposed change in the contract recommended by the Engineer.

Mr. Riker said that it was entirely within the power of the Joint Meeting to alter or modify the contract and that it was only necessary to obtain the consent of the contractor and the bondsman.

Mr. Jones said that the increase in price was not as large as he had expected, and inasmuch as the new method of construction was the only way in which the tunnel could be completed in a reasonable time, that he was in favor of adopting the recommendation of the Engineer.

Mr. Franklin, of Summit, said that he agreed witn Mr. Jones, and would favor the adoption of the recommendation, provided the time of completion were fixed as January 1, 1904.

Mr. Carr and Mr. Baldwin, of Summit, both said they thought it was the only course to pursue.

Mr. Speir offered the following resolution for adoption:

"Resolved, That the contract with the Costa Construction Company, for the construction of Section 3, known as the First Division, West Branch, and designated as AB, be modified in accordance with the recommendation of the Engineer, the price to be $17.00 per running foot and no extras to be charged for or collected and the work of the tunnel construction to be finished by January 1, 1904, provided the surety on the contractor's bond consent to the modification, and resolved further, that the Permanent Chairman and Secretary of the Joint Meeting be authorized

to execute the modified contract when same is approved by Counsel."

Mr. Jones moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Mrs. N. E. Taylor be paid $75 in addition to the $300 voted paid at the last meeting for the right of way through her property, known and designated at Plot No. 69. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the estate of Owen McCabe be paid at the rate of one dollar a running foot for the right of way through said property, known and designated as Plot No. 91. Motion was duly seconded, and on vote being taken was carried.

Secretary reported that Hamilton Kean had advised him that he had recently had the right of way through his property surveyed and that the distance was 387.77 feet, which at the price agreed upon entitled him to $581.66, or an increase of $30.20 over the amount voted him by the Joint Meeting.

Mr. Speir moved that Hamilton Kean be paid $581.66 for the right of way through his property. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the estate of James Brown be paid at the rate of one dollar a foot for the right of way through said property. Motion was duly seconded, and on vote being taken was carried.

Mr. Tuttle said that it would be necessary to make a deposit with the Board of Freeholders as a guarantee of replacing the road before work could be begun on Springfield Avenue in Millburn.

It was moved that a warrant for necessary amount be deposited with the Board of Chosen Freeholders. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that inasmuch as Mr. Tuttle's term of office would run out before the next meeting, he would move that a resolution of thanks be tendered Mr. Tuttle for the excellent service he rendered the Joint Meeting as a member of the Board. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of May 7, 1903.

On roll being called, it was found that a majority of the municipalities were represented.

Mr. Speir moved that the minutes of the previous meetings be approved as printed. Motion was duly seconded, and on vote being taken was carried.

The following communication from Mr. Riker was read:

"Newark, N. J., May 7, 1903.

"Mr. William Rollinson,
"Century Building, City.

"Dear Sir:—

"I will not be able to attend the session of the Joint Meeting to-night, and therefore enclose herewith letter received from Mr. McCully, Superintendent of the New Jersey Division of the New York and New Jersey Telephone Company. In view of the contract made by the Joint Meeting with the City of Elizabeth with reference to the payment of the expenses of underground work disturbed in that city by the construction of the sewer, I do not hesitate to advise the ratification of the agreement made by Mr. Potter with the Telephone Company as stated in Mr. McCulley's letter.

"There is nothing which I know of requiring a special opinion at this meeting.

"I have not yet received specifications from the Engineer to prepare the modification of the contract with the Costa Construction Company for the work on the Third Section of the sewer. As soon as it is received, I will prepare the modified contract and secure the ratification of it by the surety on the contractor's bond.

"I enclose herewith duly verified bill for retainer, services and disbursements during the year ending April 1, 1903.

"Yours very truly,

"Adrian Riker."

On motion the communication was received and placed on file.

Mr. Phraner, Treasurer of the Joint Meeting, presented the renewal of his bond for the coming year.

Mr. Speir moved that the renewal of the Treasurer's bond be approved and placed on file. Motion was duly seconded, and on vote being taken was carried.

The regular monthly report of the Engineer was read as follows:

"New York, May 7, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present herewith my report for the month of April. The estimates presented herewith show that the net amounts due the contractors on the various sections are as follows:

Section 1, T. J. Shea	$ 8,104.91
Section 2, Harrison Construction Co.	3,435.87
Section 3, Costa Construction Co.	7,807.06
Section 4, James P. Hall	4,517.76
Section 5, Earle & Dougherty	4,352.79
Section 6, Harrison Construction Co.	7,353.60
Total	$35,571.99

"The total amount of the March estimate was $42,517.10. The approximate amount of work estimated to be done during the month of May is as follows:

Section 1, T. J. Shea	$ 6,000.00
Section 2, Harrison Construction Co.	7,000.00
Section 3, Costa Construction Co.	7,000.00
Section 4, James P. Hall	6,000.00
Section 5, Earle & Dougherty	5,000.00
Section 6, Harrison Construction Co.	6,000.00
Total	$37,000.00

"Section 1, T. J. Shea, Contractor.—We hope to complete the work of construction on this section during the present month. The gap yet remaining to be completed at Jersey Avenue is rapidly being closed in and will be completed by the end of this week. The portion yet remaining to be done at the lower end of Contract No. 1 is less than five hundred feet long and will be completed by the end of next week.

"It will take probably four weeks after the completion of construction before the contract can be cleaned up so as to leave the work in a condition fit for acceptance. When accepted the payment of approximately $22,000 becomes due the contractor, which must be paid within thirty days after the acceptance of the work. This means that provision must be made for this payment as near as we can now judge between the 1st and the middle of July.

"Section 2, Harrison Construction Co., Contractors.—The amount of work done by the contractors on this section has been disappointing, owing to the peculiarities of the soil. A great deal of quicksand has been encountered upon this work, but the contractors are now out of this treacherous material and are into rock

again. This will retard the work of construction so that I do not believe that Section 2 can be completed before the end of June.

"Section 3, Costa Construction Co., Contractors.—The character of the material being encountered on this section remains about the same, quicksand in large quantities being met with in both ditches. The iron pipe across the Elizabeth Water Company's property is practically completed and an inspection of the same should convince you of the excellent work which has been done by the contractors on this section. The Elizabethtown Water Company has been withdrawing water from this swamp to such an extent that the material which was in every way unstable, now affords a good foundation and will continue to do so as long as the water company continues to use this collecting area. The concrete piers, therefore, which were substituted for the piling, form a perfectly stable base, and in my judgment the guarantee of the contractor to maintain this contract for two years will not entail any expense whatever upon him.

"On the tunnel section work has been abandoned on Shaft No. 1, and the efforts of the contractor are confined to getting Shaft No. 2 down to grade. A depth of about 35 feet has been driven, out of the total depth of 45 feet required. The water encountered in this trench has somewhat diminished, but it still exists in sufficient quantities to harass the contractor's efforts to a considerable extent.

'Section 4, James P. Hall, Contractor.—Progress on this section has been unsatisfactory, and I have been compelled to call the attention of the contractor to the fact that his work is not pushed with that vigor that would mark the work of a successful contractor. Unless the contractor moves more rapidly than at present this work will not be completed on time.

"Section 5, Earle & Dougherty, Contractors.—This work has not been going along to my entire satisfaction, although every allowance should be made the contractors having this work in charge. This is the most discouraging work undertaken in connection with the joint enterprise. The contractors have had considerable difficulty by reason of the fact that the contractors in Irvington have a dry ditch almost entirely, whereas these contractors' ditches are almost all wet. The practical effect is that the workmen prefer to work in dry ditches, and consequently the contractors on the Fifth Section have had great difficulty to secure men in sufficient numbers to properly conduct their work.

"I beg to report that work on Lyons Avenue has been begun, and upon its completion the investigation and report called for by your commission as to the condition of this work will be made and presented for your consideration.

"Section 6, Harrison Construction Co., Contractors.—More satisfactory progress has been made upon this section than upon any other during the month and the line is now completed to the

point where the Fourth Section begins. The sewer is being extended toward Summit at a good rate of speed. Work has been resumed at the McCabe property, which was suspended several months ago on account of failure to secure right of way across this property.

"I have investigated the question of a good method for the measurement of the flow of sewage contributed by the various municipalities through their sub-laterals, and also the measurement of the flow of sewage at different points along the line of the Joint Trunk Sewer. I would recommend the purchase of twelve Dibble Mechanical Recording Gauges for this service.

"These gauges are to be located in specially constructed manholes at various points along the line of the sewer, and by means of floats the exact depth of the flow of sewage at these points can be determined, recording automatically. Knowing the grade upon which the sewer is built, its size and depth of flow of the sewage, the actual amount of sewage flow at these points can be readily determined.

"While it will be necessary to measure the flow of the sewage at more than twelve points, one gauge can be made to serve for two points of measurement, so that at present twelve gauges will be all that will be necessary. The manufacturer of these gauges has offered to furnish them for $45.00 in lots of 12 and over, or singly at $60.00.

"The question of compensation for trees destroyed upon the property of John Ehrhardt was referred to me some time ago. I reported adversely upon the payment of this bill, because I was informed at that time that the price paid to Mr. Ehrhardt differed from the price agreed upon with me when I suggested a payment for damage to trees. I have since learned from Mr. Adams that the price actually paid Mr. Ehrhardt was identical with the terms agreed upon between Mr. Ehrhardt and myself. I consequently think that he is entitled to some compensation for the damage to his trees, and would recommend the payment of $75.00 for this damage.

"During the month it was necessary to increase the number of inspectors upon the work and the name of Mr. E. G. Delaney was presented to me by the representative from Summit. Mr. Herman Schlegel resigned his position as inspector on the 1st of May and Mr. Charles Derivaux has been stricken by pneumonia. I consulted Commissioner Baumann as to some one to take their places until action of the Joint Meeting, and he recommended the names of Mr. George E. W. Aspden and Mr. John Spies. Action should be taken approving of the appointment of these men.

"I present herewith progress map showing the work done up to the end of April, and also my bill for services in conformity to contract.

"Respectfully submitted,

"Alexander Potter."

It was moved that the report be received and spread on the minutes. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the chair appoint a new member on the Auditing Committee to fill vacancy caused by the retiring of Mr. Glazier. Motion was duly seconded, and on vote being taken was carried.

Chair appointed Dr. Campbell, of Millburn, to fill vacancy on the Auditing Committee.

Mr. Speir moved that the appointment of E. G. Delaney, of Summit, as Inspector, be ratified and confirmed. Motion was duly seconded, and on vote being taken was carried.

It was moved that the appointment of Messrs. George E. W. Aspden and John Spies, of Newark, as inspectors, to fill vacancy caused by the resignation of Mr. Herman Schlegel and the sickness of Mr. Chas. Derivaux, be ratified and confirmed. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir stated that Mr. Wm. Halsman had been employed as inspector for four days, to fill a temporary vacancy on the South Orange Branch of the sewer.

It was moved that the employing of Wm. Halsman as inspector for four days be ratified by the Joint Meeting, and that he be paid at the regular rate for his services. Motion was duly seconded, and on vote being taken was carried.

Proposed resolution to be passed by the various municipal boards was submitted by Counsel. The purpose of this resolution being to amend the joint contract so as to take away from the commission the power to assess benefits and award damages, and place same in the hands of the various municipalities to deal with in the same manner they might elect to treat their lateral sewers.

Mr. Speir moved that the form of the resolution be approved and that the Secretary be instructed to forward a copy to each member of the Executive Committee for presentation to their respective municipal boards, and further, that the Secretary request that a certified copy of the resolution be sent him by the clerks of the various municipalities, in the event of its adoption by said municipalities. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Newark, N. J., May 5, 1903.

"Adrian Riker, Esq., Counsel,
"Joint Sewerage Commission,
"Lawyers' Building, Newark, N. J.

"Dear Sir:—

"As per my conversation with you this morning, I desire to state that we have an order from Mr. Potter, Engineer of the Joint Sewerage Commission, to change location or construction of our conduits at corner of Jersey Avenue and Bayway, City of Elizabeth, in order to make way for the new sewer. We estimate that the cost of doing this work will be $341.83, and Mr. Potter has agreed to reimburse us for one-half of that amount, $170.92.

"We recognize that the work should proceed and, as you have advised me this morning that without doubt that expenditure would be authorized by the Commission, the work has proceeded to-day without further delay. I would be very much obliged if you would give me the official order of the Commission for doing the work at the amount fixed.

"Yours truly,

M. G. McCully,
"Superintendent."

Mr. Speir moved that the Joint Meeting pay to the New York and New Jersey Telephone Company, $170.92, in accordance with agreement of Engineer as set forth in Mr. McCully's letter, and further, that the Secretary be directed to so notify the telephone company. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Engineer be authorized to purchase ten Dibble Mechanical Recording Gauges at a cost of $45.00 per gauge. Motion was duly seconded, and on vote being taken was carried.

It was moved that the question of paying John Ehrhardt for damages to trees, etc., mentioned in Engineer's report, be referred to Counsel. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $50,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

"On the Main Trunk, designated as XA, $20,000.

"On the East Branch or Branch Sewer, designated as AQT, $5,000.

"On the First Division, West Branch, designated as AB, $10,000.

"On the Second and Third Divisions, West Branch, designated as BKL, $5,000.

"On the Summit and Millburn Division, designated as BI, $10,000.

"And further, That the Secretary be directed to give notice to the various municipalities of said assessment and the proportion to be paid by each, and further that said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the 7th day of May, 1903."

Motion was duly seconded, and on vote being taken was carried.

It was moved that the Permanent Chairman be paid his salary at the rate of $500 a year. Motion was duly seconded, and on vote being taken was carried.

Mr. Riter, of Union Township, on receiving permission from the chair, asked permission to connect ten new houses with the main trunk sewer.

Mr. Riter was advised that the matter was beyond the jurisdiction of the Joint Meeting, and that he must take the matter up with the Township of Union.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

W. L. Glorieux	$ 958.34
T. J. Shea	8,104.91
Harrison Construction Company	3,435.87
Costa Construction Company	7,807.06
Jas. P. Hall	4,517.76
Earle & Dougherty	4,352.79
Harrison Construction Company	7,353.60
Alexander Potter	1,333.95
W. E. Glazier	90.00
E. D. Tuttle	90.00
Wm. Rollinson	143.04
Wm. B. Adams	121.60
Roe & Conover	7.80
N. Y. & N. J. Telephone Company	27.75
S. Leschziner & Co.	54.16
Orange Journal	16.90
S. M. Davy	3.95

Herman Schlegel	91.00
Thos. R. Smith	91.00
E. G. Delaney	38.50
John Hauck	91.00
Wm. Welsher	91.00
Theo. W. Hall	91.00
M. F. Lannon	87.50
James Farrell	91.00
Chas. E. Derivaux	91.00
Timothy Barrett	91.00
Geo. C. Hand	91.00
John Wander	84.00
James H. Van Houten	91.00
John Holsman	14.00
W. H. Van Iderstine	91.00
Chas. Campbell	91.00
G. W. Hayward	91.00
Grover Bros.	9.70
H. E. Van Ness	5.64
Adrian Riker	4,073.90

Mr. Tuttle, on receiving permission from the chair, reported that Patrick Larney claimed to have sustained permanent damages to his brook and trees during the construction of the sewer through his property.

Mr. Speir moved that the matter be referred to the Engineer to investigate and to make report on same at the next meeting. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of June 4, 1903.

In the absence of the Permanent Chairman, the Secretary called the meeting to order, and stated that Mr. Glorieux had gone abroad and would probably be absent for two months.

Mr. Jones nominated Mr. Speir to act as Chairman during the absence of Mr. Glorieux. The nomination was duly seconded.

On motion the nominations were closed.

On vote being taken Mr. Speir was unanimously elected to act as Chairman during the absence of the Permanent Chairman.

Mr. Speir took the chair.

On roll being called it was found that a majority of the municipalities were represented.

Counsel submitted a proposed amendment to the contract with the Costa Construction Company, which he had prepared in accordance with instructions of the Joint Meeting.

Mr. Baumann moved that the proposed amendment to the contract for the construction of the Third Section of the Joint Trunk Sewer submitted by Counsel be approved, and that the officers of the Joint Meeting be authorized to execute said amendment after same had been duly executed by the contractor, countersigned by the surety, and having affixed thereto a personal guarantee of Mr. Bassett. Motion was duly seconded, and on vote being taken was carried.

Communications from Emma H. Watson were read, asking that she be reimbursed in the sum of $1,454 for damages sustained to her house by the blasting during the construction of the Joint Sewer, and that she be allowed further damages for the well which she alleged had gone dry by reason of the excavation.

On motion the matter was referred to the Assistant Counsel to take up in conjunction with the Engineer and Contractor and to report on same at the next meeting.

Communication from W. A. Manda was read, asking that the Joint Meeting send check in payment of claim previously presented by him.

Mr. Jones moved that the matter of the claim filed by Mr. Manda be referred back to the Engineer for further investigation. Motion was duly seconded, and on vote being taken was carried.

Rights of way taken up.

Secretary stated that he had been advised by Mr. Adams that Mr. Hartshorne would sell the right of way through his property for $25.

Mr. Campbell moved Stewart Hartshorne be paid $25 for the right of way through his property. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that Stuart Lindsley be paid the balance of the purchase price, to wit, the sum of $150.00, for the right of way through plot No. 46, formerly owned by Isaac M. Williams. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that the Board of Education of Union Township be paid at the rate of one dollar a foot for the right of way through the property of the Salem School, and further, that they be given the right to connect the schoolhouse with the Joint Sewer, said connection, however, to be made only under the personal supervision of the Engineer of the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Frye, of Irvington, stated that Lyons Avenue was still in very bad condition, and that he thought something ought to be done to reclaim the street.

Mr. Potter said that he would personally guarantee that Lyons Avenue would be completed and restored to as good condition as formerly within a month from the present time.

The regular monthly report of the Engineer was read as follows:

"New York, June 4, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present herewith my report for the month of May. The estimates presented show that the net amounts due the contractors on the various sections are as follows:

Section 1, T. J. Shea	$4,076.00
Section 2, Harrison Construction Co.	7,151.17
Section 3, Costa Construction Co.	8,027.29
Section 4, James P. Hall	5,931.97
Section 5, Earle & Dougherty	7,803.51
Section 6, Harrison Construction Co.	6,652.52
Total	$39,642.46

"The net amount of the estimate for April was $35,000.

"The approximate amounts of money to be paid to the con-

tractors at your next monthly meeting will be as follows:

Section 1, T. J. Shea	$20,000
Section 2, Harrison Construction Co.	9,000
Section 3, Costa Construction Co.	8,000
Section 4, James P. Hall	7,000
Section 5, Earle & Dougherty	8,000
Section 6, Harrison Construction Co.	8,000
Total	$60,000

"The construction of the sewer on Section 2 is 94 per cent. completed; Section 3, 49 per cent. completed; Section 4, 58 per cent. completed; Section 5, 70 per cent. completed; Section 6, 49 per cent. completed.

"Section 1—The work of sewer laying upon Section 1 has been completed during the past month, and a preliminary inspection has been made by my assistants, who report that the general condition of the work is satisfactory, but before acceptance, I shall myself make a complete inspection of the sewers and work upon this section, which means the traversing of the entire length of the sewer itself from manhole to manhole. While the general condition of the sewer has been reported satisfactory, the outlet for a distance of about ten feet has been found to be ruptured, due to the heavy loading of the dock by the contractor with his materials while the brick work was still green. I have examined this part of the sewer in person and have instructed the contractor to tear out the damaged portion of the sewer and to rebuild the same. This has not as yet been done.

"Some of the streets in the City of Elizabeth have not yet been restored to the condition in which the contractor found them originally, but work upon them has been commenced and the contractor is at present negotiating with the Elizabeth authorities in the hope that the present grade of the streets as left by him will not have to be altered to the grade found by the contractor prior to the commencement of his work.

"In view of the fact that the contractor has not in these and certain other particulars entirely completed his work, and has brought forth claims amounting to something over $4,000.00 for the under-estimating of rock on the part of the engineers and inspectors during the time since the beginning of the work and for other items for which he has not been paid, and for which he claims he is entitled to payment, it has become necessary for me to have an entire remeasurement made of all disputed measurements and claims and to carefully examine into them in person, and this I have not been able to do since the presentation of the contractor's claims, as the work is pressing very heavily at this season of the year, but will take up at the earliest possible moment in order that a final estimate may be made and all matters finally settled with the contractor as soon as his repairs are properly made and the work satisfactorily completed.

"The estimate for the work done during the past month as

prepared from the measurements of the assistant engineers and inspectors amounts to $4,076.00, making the total contract price of Section 1, $155,069.84, exclusive of the claim of the contractor for extra rock, etc.

"During the month I have had a conference with the authorities of Union Township in regard to the macadamizing of the road on North Avenue. It will be remembered that in securing this right of way we agreed to macadamize North Avenue as part of the consideration given. To do this by contract would probably cost the Joint Meeting in the vicinity of $1,200.00 or more. I have persuaded the Union Township authorities to accept the sum of $600 cash payment for this work, they to do the stoning of the road themselves. I would recommend that this proposition be accepted.

"Section 2—There still remains about 1,100 feet of brick sewer to be laid upon the Second Section. The contractor is pushing this construction with all due diligence and hopes to have the work completed by the first of July.

"In accordance with instruction of your Board, I have had a conference with Mr. Patrick Larney about additional compensation for right of way across his property due to the fact that the sewer is constructed above the ground and has largely affected the value of his property. Mr. Larney asked $1,000.00 additional damage, but agreed with me to accept $125.00 as full compensation for the damages sustained.

"The sewer crosses over the Elizabeth River on the property of Mr. Larney, and there is therefore a possibility of the pipe forming a lodging place for drift wood and other things passing down the stream. It should, therefore, be kept free and open and Mr. Larney has agreed to keep this crossing clear of all obstructions for a salary of $10.00 a year. I would certainly recommend the immediate appointment of Mr. Larney for this service.

"Section 3—Work upon this section has not proceeded during the month at a rate which will insure the completion of the work at the end of the present year, the date upon which the contractor has agreed to complete the tunnel section. I have recommended to the contractor the purchase of an additional cable machine in order to expedite the work of construction so as to reduce the possibility of the work not being completed on the first of January.

"The machinery for the tunnel section is all on the ground and is now being set up. The contractors expect to have air on the tunnel on the 15th of June, the date on which I estimated some time ago the actual work of the tunnel would begin. In a week after that date we should be able to know how rapidly this work can be advanced.

"I beg to advise you that the excavating for the sewer in the vicinity of the Kuback property has dried up the well on Mr. Kuback's place, and under the contract made with him it is my understanding that the Joint Meeting must provide him with a well. I have asked for prices for the driving of this well from

Mr. T. H. Conlan. As Mr. Kuback is now inconvenienced by the failure of his well, immediate action should be taken upon this matter. It is my firm belief that when the sewer has been constructed the water will return to the present well.

"I present herewith the bill of Mr. Day for extra compensation for additional right of way caused by the diverting of the brook in order to facilitate construction.

"Section 4—The work upon Section 4 has been progressing at the usual rate of speed, but not as rapidly as the excellent conditions of the weather would warrant. The contractor has within the last few days been held up in the Village of South Orange on account of an ordinance which prohibits the blocking of the sidewalks, and it is almost impossible to construct the work at the point at which the work was stopped without placing materials temporarily upon the sidewalks.

"Section 5—Work upon the Fifth Section has been progressing quite satisfactorily during the month, and at the same rate of progress the entire section should be completed within the next two months, which would enable the contractors to complete within the time limit of their contract. The contractors have not yet made the connection on Lyons Avenue, and this must be made before this sewer can be inspected. This connection will be made, however, within the next week.

"I beg to call your attention to the fact that Clinton Street in the Borough of Vailsburg has been filled in during the month to a depth of two feet before the contractors had the opportunity of placing the sewer upon this street. The question of extra compensation for this modifying of the street surfaces should be referred to Counsel for his opinion.

"I present herewith a claim of $3,000.00 for extra compensation claimed by the contractor on account of the additional work and difficulties and increased cost due to the deepening of the grade on Lyons Avenue for the accommodation of Newark.

"Section 6—Work upon the Sixth Section is progressing satisfactorily and if the present rate of progress is kept up this work will be completed on time.

"I present herewith progress map showing the work done up to the end of May, and also my bill for services in conformity to contract.

"Respectfully submitted,

"Alexander Potter."

It was moved that the report be received and spread on the minutes. Motion was duly seconded, and on vote being taken was carried.

Recommendations in Engineer's report taken up in detail.

On being asked in regard to North Avenue, the Engineer stated that the total distance to be macadamized was about 1,700 feet.

It was moved that the Township of Union be paid $600.00 in lieu of macadamizing North Avenue, as agreed on in the contract between the Township of Union and the Joint Meeting, and further, that said money should be paid by Counsel of the Joint Meeting after the Township authorities had executed a satisfactory release. Motion was duly seconded, and on vote being taken was carried.

Counsel advised that inasmuch as the sewer had not been accepted by the Joint Meeting, that no action should be taken in regard to Mr. Larney.

In regard to Kuback's well, it was moved that the Engineer be instructed to erect a windmill as agreed on in the Kuback deed, provided, however, that the cost of construction shall not exceed $500.00. Motion was duly seconded, and on vote being taken was carried.

In regard to the recommendation to pay Mr. Day extra compensation, Mr. Jones moved that the bill be paid in accordance with the recommendation of the Engineer. Motion was duly seconded, and on vote being taken was carried.

It was moved that the application for extra compensation claimed by the contractor on Clinton Street be referred to Counsel. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"June 2, 1903.

"Mr. Alexander Potter,
"South Orange, N. J.

"Dear Sir:—

"As you are aware, all that we have been allowed for extra excavation on Lyons Avenue, due to deepening the sewer for the city of Newark, has been $242.00. The deepening of this sewer over what was contemplated when we bid upon the work, has cost us, over and above what you have already allowed us, $3,000.00.

"We consider that we are entitled to this amount.

"Yours respectfully,
"Earle & Dougherty."

Mr. Jones moved that the communication be referred back to the Engineer for a detailed report. Motion was duly seconded, and on vote being taken was carried.

Isaac C. Mishler presented a claim against the Costa Construction Company for work done on the sewer amounting to $1,293.35.

On being called on, Mr. Mishler stated that the claim was for laying brick, and that it had been running for some time back.

Counsel advised that the contractor be notified of the claim and that the amount claimed be withheld from money due the contractor until the matter had been adjusted by the contractor and Mr. Mishler.

It was moved that the bill be referred to the Engineer to take up with the contractor and Mr. Mishler for adjustment before paying the contractor the estimated amount due for work done last month, and that in the event of their failing to reach a settlement, that the amount of the claim, to wit, $1,293.35, be withheld from said moneys due the contractor. Motion was duly seconded, and on vote being taken was carried.

Secretary stated that some of the Inspectors who had resigned had neglected to return the steel tapes.

It was moved that in the future the Secretary be authorized to withhold three dollars from money due any Inspector who resigned or was laid off until the steel tape was returned. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion ordered paid, all voting aye:

T. J. Shea	$4,076.00
Harrison Construction Company	7,151.00
Costa Construction Company	8,027.29
James P. Hall	5,931.97
Earle & Dougherty	7,803.51
Harrison Construction Company	6,652.52
Alexander Potter	1,621.58
S. Leschziner & Co.	54.16
S. M. Davy	6.25
Grover Bros.	15.00
Orange Journal Publishing Company	17.05
Edward F. Little	4.00
F. Judas	39.00
Chas. Rust	18.25
Henry Keenan	14.00
Wm. Rollinson	125.00
Wm. B. Adams	127.75
Martin F. Lannen	91.00
Geo. C. Hand	91.00
James H. Van Houten	91.00
Geo. W. Aspden	87.50
John Hauck	91.00

Thomas R. Smith	52.50
Timothy Barrett	91.00
Theo. W. Hall	91.00
Wm. Welsher	91.00
Chas. Campbell	91.00
E. G. Delaney	91.00
James Farrell	91.00
John Spies	87.50
Geo. W. Hayward	91.00
John Wander	91.00
Wm. H. Van Iderstine	91.00

Mr. Baumann moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of sixty thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

"On the Main Trunk, designated as XA, $25,000.

"On the First Division, West Branch, designated as AB, $10,000.

"On the Second and Third Divisions, West Branch, designated as BKL, $5,000.

"On the East Branch, or Branch Sewer, designated as AQT, $10,000.

"On the Summit and Millburn Division, designated as BI, $10,000.

"And further, That the Secretary be directed to give notice to the various municipalities of said assessment and the proportion to be paid by each, and further, that said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the 4th day of June, 1903."

Motion was duly seconded, and on vote being taken was carried.

Mr. Riker said that he had been advised by Mr. Shea that work was nearly completed on Section 1, and he would recommend that the Engineer examine the work so that the sewer could be accepted by the Joint Meeting, and the balance of money paid the contractor as per contract.

Mr. Potter said he would make the examination and advise the Chairman when he was prepared to make a report, so that a special meeting could be called to formally accept the sewer.

On motion, the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of July 9, 1903.

On roll being called it was found that all the municipalities were represented.

Mr. Jones moved that the reading of the minutes of the previous meeting be dispensed with and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

The following recommendation of the Executive Committee was read:

"Recommended, That Mr. Wm. B. Adams be retained as bookkeeper for the Joint Meeting at his present salary."

Mr. Baumann moved that the recommendation be concurred in. Motion was duly seconded.

After discussion Mr. Jones offered the following amendment: "That Mr. Adams be employed from week to week to terminate at the pleasure of the Board."

Amendment was duly seconded and on vote being taken was carried.

The original motion was put and on vote being taken was carried.

Communication from Griggs & Harding, Counsel for Mrs. Emma H. Watson, was read, presenting claim in the sum of $1,904.00 for damages sustained to property on line of sewer.

On motion the communication was received and placed on file. It was moved that the claim of W. A. Manda in the sum of $304 be paid in the following manner, that is to say, that the sum of $125 be paid by the Joint Meeting and the balance to wit: The sum of $179 be deducted from such moneys as may become due James P. Hall, the contractor on the South Orange section. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the Joint Meeting issue a warrant to the Board of Chosen Freeholders in the sum of $300, to be placed on deposit as a guarantee that Millburn Avenue would be replaced in its former condition. The motion was duly seconded, and on vote being taken was carried.

The regular monthly report of the Engineer was read as follows:

"New York, July 9, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—I beg to present herewith my report for the month of June. The estimates presented herewith show that the amounts due the contractors on the various sections are as follows:

Section 1, see attached letter.	
Section 2, Harrison Construction Co.	$ 4,893.01
Section 3, Costa Construction Co.	4,902.32
Section 4, James P. Hall	4,763.99
Section 5, Earle & Dougherty	6,204.30
Section 6, Harrison Construction Co.	6,242.42
Total	$27,006.04

"The net amount of the estimate for May was $39,000.

"The approximate amounts of money to be paid to the contractors at your next monthly meeting will be as follows:

Section 2, Harrison Construction Co.	$ 5,000.00
Section 3, Costa Construction Co.	7,000.00
Section 4, James P. Hall	6,000.00
Section 5, Earle & Dougherty	6,500.00
Section 6, Harrison Construction Co.	6,000.00
Total	$30,500.00

"Section 1—I submit herewith a special report upon this section.

"Section 2—The steady rains during the month of June impeded our progress on this section very materially. I refer especially to this section because we had been hoping for the completion of this section and to have part, at least, of our sewer in operation in the near future. As conditions appear now I can see no good reason why the sewer should not be completed on this section by the first of the month.

"The roadway near Faitoute's property, where the grade of the sewer necessitates the raising of the road, is now being attended to and should be completed within a few days.

"Mr. John Ehrhardt has again requested me to have his account for trees attended to. As I stated in my former report, I believe that under the circumstances some allowance should be made Mr. Ehrhardt for this damage, and I fixed the price of $75.00.

"Section 3.—The matter of special interest on Section 3 is the construction of the tunnel. I am pleased to state that the work on the tunnel is now in full operation; the construction of the shaft from which the headings are to be started has now been carried down to grade, and during the next week both headings

will be started, when we will be in a position to know more definitely the date of the completion of this work.

"Section 4—Work upon this section has been greatly retarded, due to the contractor having to put two gangs of men on Meadowbrook Lane, one to dig, the other to take away the material from the premises entirely over the railroad, the property owners objecting to the depositing of dirt upon the sidewalk.

"There has been nothing of special interest in connection with the construction of this work which requires the attention of the Board. The question of payment for additional compensation to Mr. W. A. Manda, for right of way across his property, I believe, will be taken up in a report by Mr. Speir.

"Section 5—These contractors have so many wet ditches that the rain has particularly delayed the work upon this section. Special reference was made at the last meeting to the condition of Lyons Avenue. The contractors on this section have made arrangements with the Road Commissioners to take over the repairing of this road and the replacing of it to its original condition and the responsibility of the repairs to this road now rests wth the authorities of Irvington.

"The rainy weather has also interfered with the cleaning out of the sewer so that the inspection by the Engineers of Newark and Irvington, which was to have been made last week, could not be made in time for a report for this meeting. It will be attended to during the coming week.

"Section 6—Better progress has been made upon Section 6 than upon any other section during the month. The contractors should have no difficulty in completing this section during the present year. There has been no matter of serious moment requiring the attention of the Board upon this section.

"I present herewith progress map, showing the work done up to the end of June, and also my bill for services in conformity with contract.

"Respectfully submitted,

"ALEXANDER POTTER."

"New York, July 9, 1903.

"Joint Meeting, Newark, N. J.

"Gentlemen: I beg to present herewith final estimate for Section 1 of the Joint Trunk Sewer. I have gone over this matter carefully with the contractor, taking up with him the various claims presented by him for extra work, amounting in all to some $20,000.

"The first item of difference between the contractor and myself was in regard to rock measurements. The contractor claims extra compensation for all work over a reasonable increase which would be expected of him, the plans having been altered with the approval of the Joint Meeting after the contract was

entered into with Mr. Shea. Mr. Shea makes a claim for payment for this excess of rock of $2.50 per yard, or $1.00 per yard additional for 7,662 yards.

"There is a principal involved in contracting that the right to increase quantities exists only within certain reasonable limits; twenty per cent. to twenty-five per cent. being considered an allowable increase. 7,600 yards is therefore greater than a reasonable increase and would form the basis of a claim on the part of the contractor. However, as the removal of this excess of rock was greatly facilitated by the method adopted by Mr. Shea on his section, the expense of removing the rock was in my opinion not in excess of the price bid upon it. In my judgment the cost to the contractor on this work should be taken into consideration in looking into the reasonableness for a claim for extra compensation. I have therefore not allowed this claim for additional compensation for extra rock.

"The next item of difference between the allowance already made and the claim of the contractor is for the construction of the concrete steel section under the Penna. R. R. Paying for this work on the yardage basis, that is to say, so much for each yard of concrete, so much for each yard of excavation made, the price of $10.00 allowed would form a fair value of the work done. The contractor, however, claims that he had a price at which he agreed to construct a section of the sewer practically similar to this, and his price which is stated in the contract is $14.50 per foot.

"This price of $14.50 was based upon the assumption that there would be over 1,000 feet of this construction. Therefore the expense of equipping the plant to construct 150 feet would make the price per foot even more expensive.

"On account of the close proximity to the street more iron was put into this construction than was intended for a similar section which was to take the place of the 66-inch brick sewer near the outlet. Mr. Shea's contention, therefore, is one which if insisted upon could be maintained and I have therefore allowed it.

"Another item where there was a discrepancy between the amount heretofore estimated and the amount now estimated is quicksand. Mr. Shea has made a claim for quicksand near Jersey Avenue section for the level at which water was encountered to the foot of the foundation, which would make approximately 1,500 yards.

"Mr. Shea did not have serious difficulty at that section to such an extent that at the time we felt justified in paying him for this amount of material; because instead of excavating this sewer trench six feet wide and sheeting it from the surface he excavated the trench fifteen feet wide with the steam shovel. The use of this method of excavation reduced the apparent level of

the quicksand. The contractor now requests payment for a greater depth, or for the depth which he would have been entitled to had he used ordinary and common methods of removal of dirt from a similar trench. I have therefore made allowance for the amount of 1190 yards.

"The last item on the estimate of $700.00 is for piling and timber under the Central Railroad and the Long Branch Railroad crossings at the foot of Bayway. Most of this work was performed by the railroads themselves, as they would not permit the contractor to do it. This was work made necessary by the construction of the sewer but it has been withheld for a long time pending the turning over by the contractor of statements that all bids for which the Joint Meeting would in any way be liable have been paid and satisfied. This has now been done.

"The contractor has made several other claims for extra compensation which have not been allowed. The total amount of the contract for Section No. 1, including the allowance referred to above, is $159,514.62. I present a letter from the contractor expressing his willingness to accept this amount in full payment of all claims against the Joint Meeting.

"On Thursday, July 2nd, in company with Mr. Speir, I started the final inspection of Section 1. We have had two small cars constructed which made it possible to travel through the sewer more readily than by walking through it. The sewer was on the whole found to be in good condition, although at a number of places small amounts of water found their way into the sewer. Three months before at the end of the rainy season this section of the sewer was practically dry. These leaks have shown themselves on account of the saturation of the ground by heavy rains of the past month. The contractor immediately sent a gang of men through the sewer and has succeeded in stopping practically all of the leaks which were found on the 2nd of July.

"On the 7th and 8th of this month I made another inspection and found that all of the leaks have perceptibly diminished, so that at the end of the 42-inch pipe I find that the rate of leakage in Mr. Shea's section is 9-10 of 1 per cent. of the capacity of the sewer.

"Considering the time at which this visit was made, namely, after a protracted rainy spell, this leakage should be expected and is much below the average for similar sewers.

"Concerning the condition of the street in the City of Elizabeth, I was presented by the city with a list of items and things to be done by the contractor, most of which things have already been attended to. The macadam roadway on the lower part of Bayway has not been left in the condition in which it was found by the contractor, but Mr. Shea has handed to me a receipt from the Street Commissioner of Elizabeth whereby, for the sum of $15.00 he agrees to put this part of the street in repair.

"Another matter to which the City of Elizabeth objects is the depositing by the contractor of ten loads of dirt on the sidewalk under the Pennsylvania Railroad. The contractor has left this material there for the purpose of using it this fall or next spring in the repairing of holes which will be found along the line of the sewer ditches. As he has deposited this material so as not to interfere with traffic in any way I cannot see any harm in its being left where it is.

"Another objection raised by the City of Elizabeth is upon the tentative connection on the part of the contractor of the house of Mrs. Watson to our sewer. Mrs. Watson's private sewer crosses our sewer ditch at an oblique angle and as our sewer at this point is some twenty-five feet deep, the restoring of the sewer cannot be made for fully a year without danger of settlement and ultimate rupture. We have therefore not insisted upon the contractor removing this sewer, but have notified the Elizabeth authorities that we consider it a tentative expedient and will remove it whenever the exigencies of their case demand this removal. The cost of making this change after the trench has been once fairly settled is a trivial matter.

"All other matters complained of by the Elizabeth authorities have been attended to.

"I would therefore recommend the payment to the contractor of his final estimate, retaining, of course, the three per cent. upon his contract price.

"Yours very respectfully,

"Alexander Potter."

"New York, July 1, 1903.

"Mr. Alexander Potter,
"143 Liberty Street,
"New York City.

"Dear Sir: In compliance with your request I beg to state that all bills for labor and material incurred during the construction of Section 1 of the Joint Trunk Sewer, including the necessary timbering and piling under the Sound Shore Railroad tracks and the Central Railroad, have been paid and satisfied.

"There is a small balance due the bricklayer which will be paid as soon as the exact amount is determined.

"Yours truly,

"T. J. Shea,
"Per R. B. Muir."

Dr. Campbell moved that the report be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Communication from T. J. Shea was read, stating that he would accept $159,538.62 as final payment.

"New York July 9, 1903.

"Mr. Alexander Potter,
"143 Liberty Street,
"New York.

"Dear Sir: On account of my contract in New Orleans demanding my immediate and entire attention it becomes necessary for me to settle up this matter as speedily as possible, consequently I will forego my claims and accept as final payment the sum of $159,538.62.

"Yours truly,
"T. J. Shea,
"Per R. B. Muir."

On motion the communication was received and placed on file.

Question of claim of John Eberhardt for damages to trees was brought up. On motion the matter was referred to Counsel.

Recommendations of Engineer in report were taken up as follows.

As to paying T. J. Shea, for extra work, excavating, at the rate of $2.50 per yard, or $1.00 per yard additional for 7,662 yards.

Mr. Frye moved that the recommendation be concurred in.

As to action of Engineer in allowing contractor (Shea) $14.50 per yard for construction of concrete street section under Pennsylvania Railroad. It was moved that the action of Engineer be approved. Motion was duly seconded, and on vote being taken was carried.

As to Engineer's action in allowing 1,190 yards of quicksand, near Jersey Avenue. It was moved that the action of the Engineer be approved. Motion was duly seconded, and on vote being taken was carried.

As to allowing $700 for piling and timber under Central Railroad and the Long Branch Railroad. It was moved that the contractor be allowed $700 as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the First Section of the sewer constructed by T. J. Shea, and certified to by the Engineer, be accepted by the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Zimmerman moved that the question of retaining three per cent. from the gross amount due or from the estimated

amount stated in the contract, be referred to Counsel for an opinion and for a form of resolution covering the matter. Motion was duly seconded, and on vote being taken was carried.

Mr. Bassett, representing the Costa Construction Company, on receiving permission from the chair, stated that a typographical error had been made in the proposed amendment to the contract for the construction of the Third Section. That the words "per lineal foot," immediately following the numerals 2.20 in the first clause of said amendment, had been left out and that they ought to be inserted to carry out the meaning of the sentence and the intention of the amendment.

Mr. Jones moved that the words be inserted. Motion was duly seconded, and on vote being taken was carried.

Report of Engineer taken up again.

Mr. Jones moved that the change in the section of the sewer at the approach to the tunnel, recommended by the Engineer, be approved and that in addition to the extras which had been allowed that the sum of sixty-seven cents per lineal foot be paid to cover all expenses in connection with said change. Motion was duly seconded, and on vote being taken was carried.

Bill of Costa Construction Company, for payment on account of work done during last month as per contract, was read. Mr. Jones moved bill be paid. Motion was duly seconded, and on vote being taken was carried.

Communication from Mr. Maybaum was read, asking that Mr. Hall be discharged from office of inspector on the sewer.

Mr. Zimmerman moved that the letter be received and that the matter be laid on the table. Motion was duly seconded, and on vote being taken was carried.

Communication from Counsel was read:

"Newark, N. J., July 8, 1903.

"Mr. William Rollinson, Secretary,
"Century Building, City.

"Dear Sir: Unless some matter of which I do not know at present shall be brought to my attention, requiring my attendance at the meeting on Thursday night, I desire you to present this letter.

"With respect to the payment of $600 to the Township of Union, in lieu of macadamizing North Avenue, I have written to

the attorney of the Township, requesting him to have authority given by resolution of the Township Committee to accept that sum in lieu of the provisions of the contract. As soon as the resolution is passed I will see that the settlement is properly made.

"Respecting the claim of the contractor for extra compensation for work done in Clinton Street, Vailsburg. While the situation perhaps is a hardship, it seems to me to be provided for in the contract and to be one of the risks the contractor takes in executing a contract in the form in which his was drawn. I am not willing to advise that the claim should be allowed.

"In the matter of Manda's claim: I have submitted my views to Mr. Speir, Chairman of the Joint Meeting, and I presume he will make a report upon that claim.

"I have had an interview with Mr. Weppler, who claims that the spring upon his property has been absolutely destroyed, and that he is therefore entitled to the payment of $500, as provided by the contract. This matter should be reported upon by the Engineer; and if Mr. Weppler's statement is correct, he is entitled to the payment of $500.00. He also states that the contractor laid a tile pipe for the purpose of under-draining the sewer across his property at right angles to the right of way and discharging into the brook, which he states is to be permanently maintained. If this pipe was laid under the supervision and by authority of the Engineer, Mr. Weppler is undoubtedly entitled to additional compensation for maintaining the pipe outside of the right of way. He also claims that both the contractor on the First, and the contractor on the Second Section, unnecessarily destroyed fences and otherwise injured his property. As far as I could understand the case, it seems to me that these acts were trespasses on the part of the contractors entirely outside of their contract wih the Joint Meeting, and that they are responsible and not the Joint Meeting. It would, however, be well to see that a satisfactory adjustment is made before final payments are authorized to these contractors.

"The compensation to the commissioners in condemnation of the Parcell right of way and of the Potter-Magin right of way have never been paid. In the first case the commissioners were J. William Crane and D. Hobart Sayre; the third commissioner having failed to sit. In the Magin case the commissioners were Ogden Woodruff, D. Hobart Sayre and George W. Doty. The practice in court in these cases is to allow each commissioner $25.00 for his services in case there are no extraordinary features to be acted on in the case. I have suggested to these commissioners that they be paid that amount, and would request that warrants be authorized for these payments.

"Yours very truly,

"Adrian Riker."

Question of damages to Weppler's spring. It was moved that the matter of damages claimed by Mr. Weppler be referred to the Engineer for a report. Motion was duly seconded and carried.

It was moved that Messrs. Crane, Sayre, Woodruff and Doty be paid $25, $50, $25, $25 respectively, as recommended by Counsel. Motion was duly seconded, and on vote being taken was carried.

Secretary reported that Mr. Chas. De Grasse, who had recently purchased the Nelson property in South Orange, claimed that the sewer was not laid in the right of way bought by the Joint Meeting, and that he wanted damages at the rate of $1 per lineal foot. On motion the matter was referred to the Engineer for investigation.

The Engineer stated that inasmuch as the First Section was completed he had no further use for Inspectors Van Houten and Hauck, and recommended that they be discharged.

On motion Mr. Van Houten was discharged and the Secretary was directed to notify the Common Council of the City of Elizabeth that the First Section had been completed and forward certificate of the Engineer according to the terms of the contract, and further to advise them that the services of the inspector for Elizabeth had terminated on the completion of the First Section of said sewer. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Francis Speir, Jr.	$ 150.00
C. V. Baumann	150.00
Chester N. Jones	150.00
John F. Zimmerman	97.50
Dr. Wellington Campbell	99.17
Warren D. Frey	60.00
John J. Kenney	60.00
Francis S. Phraner	600.00
Geo. W. Hayward	91.00
Timothy Barrett	91.00
Wm. H. Van Iderstine	91.00
Chas. E. Derivaux	63.00
Wm. Welsher	94.50
John Hauck	94.50
James Farrell	91.00

Theo. W. Hall	91.00
Martin F. Lannen	98.00
Geo. C. Hand	91.00
James H. Van Houten	94.50
E. G. Delaney	98.00
Geo. W. Aspden	91.00
John Wander	98.00
John Speis	91.00
Chas. Campbell	101.50
Harrison Construction Company	4,893.01
Costa Construction Company	4,902.32
James P. Hall	4,763.99
Earle & Dougherty	6,204.30
Harrison Construction Company	6,242.42
Alexander Potter	2,671.83
W. B. Adams	132.50
Orange Journal Publishing Company	11.90
Wm. Rollinson	126.20

Mr. Baumann moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of $20,000, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

"On the Main Trunk, designated as 'X. A.,' $10,000.

"On the East Branch or branch sewer, designated as 'A. Q. T.,' $5,000.

"On the Second and Third Divisions, West Branch, designated as 'B. K. L.,' $5,000.

"And further, that the Secretary be directed to give notice to the various municipalities of said assessment and the proportion to be paid by each, and further, that said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the 9th day of July, 1903."

Motion was duly seconded, and on vote being taken was carried.

It was moved that when the meeting adjourned it would adjourn to meet at the call of the chair. Motion was duly seconded and carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of July 17, 1903.

On roll being called it was found that a majority of the municipalities were represented.

On motion the reading of the minutes was dispensed with.

The following communication was read:

"Newark, N. J., July 13, 1903.

"Mr. William Rollinson, Secretary,
"Century Building, City.

"Dear Sir: Upon the question submitted to me as to the basis for the calculation of the three per cent. guarantee fund you retain from payments to the contractor of the First Section of the sewer, I am of opinion that this percentage should be computed upon the total amount of payments authorized to be made to him under the contract. It is to be observed that the amount stated in the contract as the amount to be paid to the contractor, namely, $126,351.15, is merely an estimate, and is to be increased or decreased as there should be a corresponding diminution or addition to the estimated quantities of work to be done. It is perfectly clear that the total amount of payments to be made to the contractor are made under the terms of the contract and constitute the gross amount of the contract upon which the percentage is to be retained under the 26th section of the contract.

"Yours very truly,

"Adrian Riker."

On motion the communication was received and placed on file.

Mr. Frey offered the following resolution for adoption:

"Whereas, The Engineer has certified to the Joint Meeting that he has made his final inspection and measurements and estimates of the work done by Thomas J. Shea, under his contract, bearing date February 20th, 1902, for the First Section of the Joint Trunk or Outlet Sewer, and has given to the contractor his certificates for the final payment to the said contractor, in pursuance of the 28th section of his contract;

"And Whereas, The total amount of payments earned and certified to the contractor under his said contract amounts to the sum of $159,538.62, of which he has already received the sum of $131,809.36;

"Resolved, That the work done by the said Thomas J. Shea, under his contract be and the same is hereby accepted, and that he be paid in accordance with the contract, the balance of the moneys earned by him and certified, amounting to the sum of $27,729.26, less the percentage of three per cent. (3 per cent.) authorized to be retained by the Joint Meeting for twelve months

after final acceptance of the work, being three per cent. (3 per cent.) upon the sum of $159,538.62, the gross amount of the payments earned by the contractor and certified to be paid, which percentage amounts to the sum of $4,786.16. Leaving amount to be now paid to the contractor the sum of $22,943.10."

Mr. Kenney moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Bill of S. Leschziner & Co., for rent of meeting rooms in the sum of $54.16, as per contract, was read.

Mr. Kenney moved that the bill be paid. Motion was duly seconded and carried.

The following communication was read:

"Newark, N. J., July 17, 1903.

"William Rollinson, Esq., Secretary,
"Century Building, City.

"Dear Sir: With respect to the claim of John Ehrhardt, for injury to trees upon the right of way for the outlet sewer, I submit that he has no claim at law for compensation for the injury done to the trees, as the grant of the right of way included the right to construct the sewer and do all the work incidental to such construction, including injury necessarily done to trees, etc. I am informed, however, that there has been a doubt raised as to whether or not the deed should not have included compensation for the injury done to trees as part of the contract made by the agents of the Joint Meeting for obtaining the right of way. If the contract made was not properly expressed in the deed, Mr. Ehrhardt's remedy would be by relief in the Court of Chancery, in making the deed correspond with the real contract. It is manifestly unfair to require Mr. Ehrhardt to take that course, if the contract was not properly embodied in the deed. As to the facts of that matter, I, of course, have no information upon which I could properly base an opinion. The Joint Meeting must necessarily be guided by the statements of the agents who negotiated with Mr. Ehrhardt for the right of way.

"Yours very truly,

"Adrian Riker."

On motion the communication was received and placed on file.

Dr. Campbell moved that the matter of the damages to the Ehrhardt trees be laid over and that Mr. Adams be directed to make a report on same at the next meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Freye reported that Patrick Larney claimed to have sus-

tained damage to his property owing to the change in the course of the brook on his property and from other causes during the construction of the sewer through his property.

On motion the matter was referred to the Engineer for a report at the next meeting.

Mr. Zimmerman reported that Michael Noll had filed a claim in the sum of $21.00 for damages to fences on property leased by him from Mr. Lindsley.

Mr. Speir said that inasmuch as the fences in question were on the right of way bought by the Joint Meeting, the contractor had a perfect right to take them down and further that Mr. Noll had no claim valid against the Joint Meeting.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of August 6, 1903.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Jones moved that the reading of the minutes of the previous meeting be dispensed with, and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

The Committee on Rules and Regulations submitted a copy of the proposed rules.

On motion the report was laid on the table until the Board had finished the regular business.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

John Hauck	$	28.00
James H. Van Houten		28.00
Chas. E. Derivaux		94.50
Geo. W. Aspden		14.00
James Farrell		94.50
Geo. W. Hayward		94.50
Theo. W. Hall		94.50
John Spies		94.50
Timothy Barrett		98.00

John Wander	94.50
Martin F. Lannen	98.00
Wm. Welsher	94.50
Chas. Campbell	94.50
E. G. Delaney	63.00
Geo. C. Hand	94.50
W. H. Van Iderstine	94.50
Harrison Construction Company	3,550.45
Costa Construction Company	7,091.07
Jas. P. Hall	4,830.22
Earle & Dougherty	4,717.74
Harrison Construction Company	6,055.44
Alexander Potter	984.19
Wm. Rollinson	125.60
Wm. B. Adams	108.00
Orange Journal Publishing Company	18.20
Engineering Record	28.80
Grover Bros.	24.03
New York & New Jersey Telephone Company	29.35
R. A. Simmons	1.00
Edward F. Little	15.00
Chas. Rust	8.50
S. M. Davy	4.30
Roe & Conover	7.80
S. Leschziner & Co.	54.16
Trenton Iron Company	28.00
M. D. Dorer	12.50

The regular monthly report of the Engineer was read as follows:

"New York, August 6, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present herewith my report for the month of July. The estimates presented herewith show that the amounts due the contractors on the various sections are as follows:

Section 2, Harrison Construction Co.	$ 3,550.45
Section 3, Costa Construction Co.	7,091.07
Section 4, James P. Hall	4,830.22
Section 5, Earle & Dougherty	4,717.74
Section 6, Harrison Construction Co	6,055.44
Total	$26,244.92

"The net amount of the estimate for June was $27,000.

"The approximate amount of money to be paid to the contractors at your next monthly meeting will be as follows:

Section 2, Harrison Construction Co. (final estimate)	$15,000.00
Section 3, Costa Construction Co.	9,000.00
Section 4, James P. Hall	6,000.00
Section 5, Earle & Dougherty (final estimate on a portion of the work)	13,000.00
Section 6, Harrison Construction Co.	7,000.00
Total	$50,000.00

"Section 1.—I beg to call the attention of the Joint Meeting to the fact that the City of Elizabeth desires to make connection with our sewer near Amboy Avenue, and served a two days' notice upon the Secretary. This time expired to-day. I called upon the City Engineer of Elizabeth and asked him that the matter be postponed until to-morrow.

"It is of extreme importance that for a certain period at least the connections with Elizabeth be made under the strictest supervision of your Engineer. The question arises as to whether the City of Elizabeth has a right to connect up with our sewer now that the work through the city has been completed, or is it necessary for them to wait until the entire sewer has been accepted. Our experience with the method in which the connection between the catch basin and our sewer near the Sanitary Works was made would teach us that it is necessary that all connections be made under strict regulations laid down by the Joint Meeting; such regulations to be within the requirements of the contract entered into between the Joint Meeting and the City of Elizabeth.

"I have examined the work on the First Section during the month and find that many of the small leaks in the sewer have been stopped.

"Section 2.—The brickwork on Section 2 should be completed by this time. The acceptance of the sewer, however, will depend upon the rate of progress made by the contractors in cleaning up the sewer and making it fit for final inspection. I trust that we will be able to have this inspection made within the next two weeks, when it will be desirable to have a special meeting of the Joint Municipalities, because a certain fixed part of the Town of Irvington is ready to connect with the sewer, and it seems desirable to have the sewers made use of at the earliest possible moment.

"Section 3.—I am pleased to report satisfactory progress on the tunnel. A rate of over ten feet a day has been attained, but in my judgment the material through which they are now excavating is so much improved under air that a rate of fifteen feet should be maintained from now on. The portion of the sewer to be constructed from the present shaft will be completed in five months.

"Preparations are making for sinking a second shaft. The

deep open cut on the east side of the tunnel is costing us $18.00 per foot, and is costing the contractor even more than this. The cost of the sewer to the Joint Meeting on the open cut to the west will probably be $15.00 per foot. The rate of progress being made on the open cut is much less than the rate now being attained, and which I have every reason to believe will continue, in the tunnel. With the present method of handling the work this rate of progress is assured. With the present method of handling the open cut work the rate of progress is problematical, and based upon all past experience of this section can never equal one-half the rate attained in the tunnel.

"In order, therefore, that be may be the more sure of this section being completed within a reasonable time, it seems to me good judgment to lengthen the tunnel, provided the contractor will build the enlarged sewer for the same price as he is now receiving for building the portion of the tunnel already ordered. This he has assured me that he will do.

"I would therefore recommend that the tunnel be extended to the west at least seven hundred feet beyond the point where the plan indicates the terminus of the tunnel. I would couple with this recommendation an agreement on the part of the contractors to immediately put in two additional machines west of the tunnel, if I deem both advisable.

"*Kuback Well and Windmill.*—The sum of $500 was appropriated for this purpose. It was the opinion of the well driver that water could be secured at a depth not exceeding sixty feet, whereas it was necessary to sink the well to a depth of one hundred and eighty-one feet before sufficient supply of water was secured. This has exhausted $453.33 of our $500.00 appropriated for this purpose. The windmill, tank, tower and pump will cost $350.00 in addition to that already spent.

"I have received two propositions from windmill manufacturers for this outfit, one from the Challenge Windmill Company, of Batavia, Ill., and the other from A. J. Corcoran, of New York; the bid of the former is $350 and the bid of the latter $545.

"I request instructions in connection with this matter.

"Section 4.—Work upon this section has progressed moderately. I have during the month requested the contractor to start cleaning up the work and repairing the leaks that exist in his sewer. This he has already done.

"Concerning the matter of right of way through the property owned by Thomas Nelson's Sons, in South Orange, I fail to discover where any change has been made in this line from that which was referred to in the deed and staked out on the ground. Probably this complaint arose from the fact that originally the preliminary survey for this territory ran close to a fence, thus making it necessary to get two consents for one full width of right of way. The line was subsequently changed, but before the agree-

ment was made, so that the entire right of way was over the land then owned by Thomas Nelsons's Sons.

"Section 5.—Work on this section has progressed very slowly indeed, and the conditions of all the ditches on this work must be very discouraging to the contractors, for with no gang during the month has the work been operated at a profit. A portion of this work from a point where it enters the Second Section up to Clinton Avenue and South Orange Avenue has been completed. The inspection and final repairing is now being done by the contractors in the hope that the work can be accepted during the present month.

"Section 6.—Work on this section has been retarded on account of conditions met with on Millburn Avenue, where in a ditch fourteen feet deep the most treacherous kind of quicksand has been encountered from the surface of the ground. A hill some fifteen or twenty feet high has been previously cut away at this point so that the pressure from the quicksand is really greater than the actual depth of the cut from the surface of the street to the bottom of the sewer.

"I present herewith progress map showing the work done up to the end of July, and also my bill for services in accordance with contract.

"Respectfully submitted,

"Alexander Potter."

Mr. Jones moved that the report be received and spread on the minutes. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"New York, August 6, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I ask for instructions in the case of Mr. Welsher, an Inspector whose resignation I requested last Saturday, but who has refused to comply with my request.

"Some four weeks ago I found Mr. Welsher absent from duty without leave, and at that time informed him that under no circumstances should he repeat this offense, and that if he did I would be compelled to take cognizance of it. A week ago Mr. Welsher was away from the work most of the afternoon without permission or without notifying either myself or my assistant engineer.

"You cannot overestimate the value of proper inspection upon the work. No matter how carefully the specifications might be gotten up or how accurately the lines and grades might be given,

if the work is not carefully inspected at each joint as the work progresses good work cannot be secured. Even if the inspection is conducted by engineering inspectors specially trained for this work some leaks are unavoidable. But where the inspectors are appointed, as most of ours are, without training for the work, much leakage is found to occur when the sewers are constructed in soil similar to that through which this trunk sewer traverses unless the joints are inspected rigorously. If the inspectors are permitted to come and go as they please, careful work is out of the question.

"In view of the fact that Mr. Welsher's services will be discontinued in any event within the next few weeks, it is a matter for the Board to determine whether or not he will be dismissed at this time or let off with a reprimand. I unqualifiedly recommend one course or the other.

"Yours very respectfully,

"ALEXANDER POTTER."

On motion the communication was received and placed on file.

Report of Engineer taken up in detail.

Question was raised as to whether Elizabeth had the right under the contract to connect with the sewer before the entire trunk sewer had been completed.

It was moved that the matter be referred to Counsel and that the Secretary be authorized to communicate with the City of Elizabeth, notifying them that they had no right to tap the sewer, provided, however, that Counsel so interpreted the contract with the City of Elizabeth and subject to his approval. Motion was duly seconded, and on vote being taken was carried.

Recommendation of Engineer in the matter of extending the tunnel in the Third Section taken up. Mr. Potter said that the difference in cost would be less than $1,400.00, and the gain in time would be at least three months.

After discussion, Mr. Jones moved that Counsel be directed to draw the necessary amendment to the contract so as to extend the tunnel to the west, as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Secretary reported that the Costa Construction Company had not as yet executed the amendment previously passed by the Joint Meeting to their contract.

Mr. Jones moved that the Secretary be directed to withhold any moneys that might be due the Costa Construction Company

for work done under the new contract or amendment to the contract previously agreed on and passed by the Joint Meeting, until said amendment has been executed by the Costa Construction Company, or by Mr. Bassett, acting for said Costa Construction Company, subject, however, to the approval of Counsel. Motion was duly seconded, and on vote being taken was carried.

Kuback Well. It was moved that the action of the Engineer in having the well dug by P. J. Coulder, for the sum of $453.33, be approved. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the Engineer be authorized to expend the sum of $350.00 to purchase a Challenge Windmill for Kuback's well. Motion was duly seconded, and on vote being taken was carried.

Dr. Campbell moved that when the meeting adjourned it would adjourn to meet at the call of the chair. Motion was duly seconded and carried.

Recommendation of Engineer as to Inspector Wm. Welsher taken up. After discussion it was moved that Mr. Welsher be reprimanded for leaving the work without permission and that he be fined a day's pay, and further that the Secretary be directed to notify him to that effect. Motion was duly seconded, and on vote being taken was carried.

Mr. Freye moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of fifty-five thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between the said municipalities in the following manner, to wit: On the Main Trunk, designated as XA, $15,000; on the First Division, West Branch, designated as AB, $15,000; on the Second and Third Divisions, West Branch, designated as BKL, $5,000; on the East Branch, or Branch Sewer, designated as AQT, $10,000; on the Millburn and Summit Division, designated as BI, $10,000. And further, that the Secretary be directed to give notice to the various municipalities of said assessment and the proportion to be paid by each; and further, that said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the 6th day of August, 1903."

Motion was duly seconded, and on vote being taken was carried.

Secretary reported that the deed for the right of way through the estate of James Brown had been duly executed, but that three of the heirs, under advice from Andrew Taylor, had refused to accept from Howe & Davis, attorneys for the estate, their share of the purchase price, and that Mr. Davis had returned this balance, amounting to the sum of $153.

It was moved that the Secretary be directed to endorse the check of Howe & Davis to the order of Andrew Taylor, attorney, and also to pay to said Andrew Taylor as attorney for Edward S. Brown, Clement L. Brown and Sarah A. Brown, the balance of the purchase price of said right of way, to wit, the sum of fifty dollars, subject, however, to the approval of Counsel. Motion was duly seconded, and on vote being taken was carried.

The rules and regulations limiting the use of the Joint Trunk Sewer were taken up and read.

"RULES AND REGULATIONS

"Of the Joint Meeting, Limiting the Use of the Joint Trunk or Outlet Sewer, hereinafter Designated as the Joint Sewer, and the Method of Connection Therewith.

"*Connections.* No connections shall be made with the Joint Sewer except as prescribed by these rules and regulations.

"(a) The manner of piercing or opening into the Joint Trunk Sewer, or connecting therewith, and the materials of which said connections shall be composed, must be in accordance with the rules and regulations as hereinafter set forth.

"(b) No person, firm or corporation shall make, alter or repair any connection with the Joint Sewer or do any kind of work connected with the laying of house drains or house sewers or plumbing, or make any repairs, additions to or alterations of any drain connected directly with the Joint Sewer, without the written permission of the Joint Meeting, and if any connections shall be made, or alteration of a connection or of a drain connecting with said Joint Sewer, without the written permission of the Joint Meeting, or in a manner different from the mode prescribed by said Joint Meeting, the person or persons making same, and the owner or occupant of the premises directing it to be made, shall severally and respectively forfeit and pay the sum of twenty-five dollars to the Joint Meeting for every such offense.

"*Applications for Permit.* (a) All applications for permits to connect with the Joint Sewer must be made on the printed forms furnished by the Joint Meeting. The application must be signed by the owner of the property to be drained, or his author-

ized agent, designating fully and in detail the specifications of the contemplated connection and the exact location thereof.

"(b) No application shall be granted unless the specifications of such contemplated connection are approved in writing by the Chief Engineer of the Joint Meeting, but where so approved it may be issued by the Secretary.

"(c) If any application for a permit to connect with the Joint Sewer is made by other than a municipality, the approval of the municipality in which the proposed connection is situated must be endorsed on said application.

"*Power to Reject or Annul Permits.* (d) All applications for permits to the Joint Meeting for permission to connect with the Joint Sewer shall be made upon the express condition that the Joint Meeting may return, suspend action, or reject any application for correction in form or substance, or for any other reason satisfactory to them.

"(e) The Joint Meeting further reserves the right to revoke or annul any permit that may have been granted and the person or persons making such connections, or their successors in interest, shall have no right to demand or claim damages in consequence of such permits being revoked and annulled.

"*Connections—by Whom Made.* (a) Municipal. If application to connect with the Joint Sewer is made by a municipality other than the parties to the Joint Sewer contract, such application shall contain an agreement on the part of the applicant to guarantee that the connection will be made without injuring said Joint Sewer and that the municipality will leave no obstruction therein, and the municipality shall further guarantee that the sewerage discharged into the Joint Sewer shall not contain any substance which will form a deposit or sediment that will interfere with the flow of the sewer, and further, that the discharge shall not contain any matter that is detrimental to the sewer.

"When the application of a municipality to connect with the Joint Sewer is granted by the Joint Meeting, and upon the municipality receiving a permit to that effect, the municipality, its contractors, servants, or agents, shall, at its own cost and expense, be authorized to construct said connection under the supervision of the Engineer of the Joint Meeting, and keep and maintain same in good order, together with such manholes and catch basins as they shall have the right to construct in connection therewith.

"(b) By Other Than a Municipality.—In all other cases the construction of any connection with the Joint Sewer shall be done only by such person or persons receiving a license from the Joint Meeting to make connections, as is hereinafter provided.

"*Application for License.* All openings into the Joint Sewer for the purpose of making connection therewith from any dwelling house, cellar, vault, yard, or other premises, shall be made by persons licensed by the Joint Meeting to perform such work, and

the said persons, before being so licensed, shall file in the office of the Joint Meeting a petition giving the name of the individual or firm and place of business, asking to be licensed to make connections with the Joint Sewer.

"Said petition must be signed by two responsible citizens residing on one of the jointly contracting municipalities, vouching for the business capacity and reputation of the applicant: That he is a resident of one of said municipalities, a master of his trade, and willing to be governed in all respects by the rules and regulations which are or may be adopted by the Joint Meeting.

"Each applicant for a license shall execute and deposit with the Secretary of the Joint Meeting a bond, with two or more responsible sureties, to be approved by the Joint Meeting, in the penal sum of five hundred dollars, conditioned that he will carefully make the connection with the Joint Sewer, or the opening into the Joint Sewer, in the manner prescribed by the rules and regulations of the Joint Meeting, and that he will indemnify and save harmless the Joint Meeting from all accidents and damages caused by any negligence in protecting his work, or any unfaithful, imperfect, or inadequate work done by virtue of his license, and that he will faithfully comply with the ordinances of the various municipalities in which he may do any work in relation to the Joint Sewer; and further, that he will replace and restore sidewalk, pavement or street surface over any opening he may have made, to as good a state and condition as he found it, and keep and maintain the same in good order, to the satisfaction of the Joint Meeting, for the period of six months thereafter, and that he will pay all fines imposed upon him for a violation of any of these rules and regulations.

"The limit of time of license shall be one year.

"*Material for Connections.* The house sewers from a point three feet outside of the house to the sewer shall be of first quality, salt glazed, vitrified earthenware pipe, unless laid less than three feet deep, when it shall be 'heavy' cast iron pipe. The interior diameter of the pipe shall be four inches.

"*Inspection of Work.* All work included in the construction of connections with the Joint Sewer or relating thereto shall be done under the supervision of an inspector appointed by the Joint Meeting, and to the entire satisfaction of the Chief Engineer, and the person or persons doing said work shall accept as final all decisions of said Engineer, as to the fitness of all material furnished or work done, and shall immediately replace all work rejected by said Inspector or by said Engineer, the decision of the Engineer being final.

"*Payments for Permits.* ..... dollars shall be paid to the Treasurer of the Joint Meeting for permission to connect from each dwelling, store or building, with the Joint Sewer.

"Each hotel, boarding house, or public building, covering

more ground that twenty-five feet by fifty feet, shall pay proportionately for such additional space of ground covered by each respectively. Manufactories, breweries, distilleries, and the like, for permission to connect with sewers or drains for the purpose of carrying off water or fluid that will not deposit sediment or obstruction, shall pay such sums as shall be fixed and determined by the Joint Meeting.

"All payments for permits as aforesaid shall be made to the Secretary of the Joint Meeting prior to the delivery of same to the person or persons making application therefor, to said Joint Meeting.

"*Nature and Restrictions of Discharge.* (a) No owner or occupant of any dwelling house, store or other building, or any manufactory, brewery, distillery or the like, having permission to connect with any sewer as aforesaid, shall permit any substance to flow thereinto which shall form a deposit that tends to fill said sewer, under the penalty of fifty dollars for each offense.

"(b) No butcher's offal, or garbage, dead animals, or obstructions of any kind whatever shall be placed, thrown or deposited in any sewer or lateral connection therewith, and any person so offending or causing such obstruction or substance to be placed so as to be carried into such sewer, shall forfeit and pay twenty-five dollars for each offense; and any person who shall injure, break or remove any portion of any manhole, vent, or any other appurtenance, or the sewer itself, or who shall obstruct the mouth of any sewer, or obstruct the flow of water in any sewer, shall pay the penalty of twenty-five dollars for each and every offense.

"(c) No owner or occupant of any manufactory, brewery or other building in which steam is used shall discharge any steam, exhaust or otherwise, directly into any sewer or lateral connection therewith under the penalty of twenty dollars for each offense.

"(d) No person shall drain or permit to be drained into the Joint Sewer the contents of any cesspool or privy, under the penalty of fifty dollars for each offense, unless express permission for that purpose be first granted by the Joint Meeting. Each permit granted as aforesaid by said Joint Meeting shall contain a provision that the drain pipe used for such drainage purpose shall be of the size and kind and laid in the manner specified under these rules and regulations, and with the approval of the Engineer of the Joint Meeting, and in the case of failure of the person to whom such permit is granted to comply with said provision, said permit shall be annulled.

"(e) The house drain and house sewer must be run as direct as possible, with a fall of at least one-quarter inch per foot.

"(f) All changes in any direction must be made with proper fittings, and all connections made with 'T' branches, and one-eighth or one-sixteenth bends.

"(g) In all cases the house sewer must be four inches in diameter, unless special permission is received.

"(h) Curved pipe shall be used for every deflection from a straight line of more than six inches in two feet.

"(i) The joints of the earthenware pipe shall be made with the proper oakum or jute gasket and one to one Portland cement of first quality.

"(j) The ends of all private sewers not immediately connected with the plumbing fixtures shall be securely closed by watertight, imperishable material."

It was moved that the Secretary be directed to have one hundred copies of the proposed Rules and Regulations printed. Motion was duly seconded, and on vote being taken was carried.

Mr. Adams, being called on, reported as to his agreement with Mr. Ehrhardt in the matter of damage to trees. Mr. Adams said that Mr. Ehrhardt told him that the Engineer had agreed that he should receive ten dollars for every tree killed, and he had replied that anything the Engineer had agreed on would be paid.

Mr. Adams further said that he believed Mr. Ehrhardt had signed the contract with them, understanding that he should be paid for trees damaged, although it was not contained in the contract.

Mr. Jones moved that Mr. Ehrhardt be paid the sum of $75.00 as recommended by the Engineer, after he had signed a general release for all damages sustained. Motion was duly seconded, and on vote being taken was carried.

Question as to damages claimed by Patrick Larney.

Mr. Frye moved that Patrick Larney be paid $125.00 for settlement in full for all damages sustained by him after he has given a general release or other papers, as Counsel may think necessary. Motion was duly seconded, and on vote being taken was carried.

Mr. Freye moved that Patrick Larney be paid $125.00 for

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of September 8, 1903.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Kenney moved that the reading of the minutes be dispensed with. Motion was duly seconded, and on vote being taken was carried.

The regular monthly report of the Engineer was read as follows:

"New York, September 8, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present herewith my report for the month of August. The estimates presented herewith show that the amounts due the contractors on the various sections are as follows:

Section 2, Harrison Construction Co. (final)	$13,966.36
Section 3, Costa Construction Co.	12,730.37
Section 4, James P. Hall	2,807.97
Section 5, Earle & Dougherty (final)	5,341.28
Section 5, Earle & Dougherty (approximate)	5,802.49
Section 6, Harrison Construction Co.	3,965.66
Total	$44,614.13

"The net amount of the estimates for July was $26,244.92.

"The approximate amount of money to be paid to the contractors at your next monthly meeting will be as follows:

Section 3, Costa Construction Co.	$12,000.00
Section 4, James P. Hall	5,000.00
Section 5, Earle & Dougherty (final on a portion of the work)	9,000.00
Section 6, Harrison Construction Co.	6,000.00
Total	$32,000.00

"Section 1.—I beg to report in reference to the Elizabeth sewer connection. Permission was given to the City of Elizabeth to make a connection with the Joint Trunk Sewer. During our periodic inspection of the sewer from the inside we discovered that instead of one connection being made, three connections had been made. I brought this matter to the attention of the Mayor and Street Commissioner, under whose jurisdiction this connection was supposed to be made, and they both agreed that

in the future no more violations of the contract would be made by them.

"I present herewith a form of application for connection with the sewer, for the approval of Counsel and the Joint Meeting. This form is merely tentative, and may be added to as Counsel and as the Joint Meeting may desire.

"Observations have been made as to the leakage in this section, and we find that it is gradually decreasing.

"Section 2.—Work upon this section has been completed, and the final estimate is presented herewith. All leakage on this section has not been overcome, but measurements of the flow in the sewer are being taken and most of the leakage found at the completion of the work has been stopped. The understanding with the contractors, however, is that they shall continue the work of stopping this leakage under the three per cent. retention clause of their contract. This clause gives the Joint Meeting the right to withhold three per cent. of their contract price to make good any minor defects that may exist in their section.

"All claims of the contractors have been adjusted and they are ready to sign a release of all claims against the Joint Meeting.

"Section 3.—The chief point of interest on this section is the tunnel. It is gratifying to report that six hundred feet of completed sewer have been laid up to date from one shaft. Before the close of the present week work will have been begun from a second shaft.

"The progress on the tunnel is making itself felt upon the estimates as the gross value of the sewer in the tunnel alone during the month is $7,820. There have been differences between the allowances heretofore made to the contractors and what they believed was due them under the contract and most of these have been adjusted during the past month. These adjustments have increased the allowances on past work, the only point upon past work already completed and not yet settled is allowance for quicksand.

"The contractor claims approximately 500 yards more than the allowance provided for in this estimate. In paying the contractor for work done up to date a release should be secured from him that the amount paid is in full for all differences upon the work completed, with the exception of the quicksand allowance. The question of adjustment is taken up in a letter to the Costa Construction Co., a copy of which letter is submitted herewith.

"New York, September 5, 1903.

"Mr. C. P. Bassett,
"Treas. of Costa Construction Co.,
"Summit, N. J.

"Dear Sir:—

"In reply to your letter of August 28th, I beg to state as follows:

"My agreement was to allow an average of 4 feet between Stations 52 plus 73 and 73 plus 33. This being the average, it necessarily follows that the allowance already made must be modified.

"I have allowed you five cents a foot for gravel used in the under-drain with the exception of one portion, where for a short distance the underdrain was incased in brickwork.

"The rowlock course between Station 45 plus 25 and Station 46 plus 80 being put in without any orders, should not properly be allowed to you. There is a probability that this rowlock course was of some benefit to the sewer and I therefore will allow you five yards of brick masonry instead of ten, which you claim, because between these points nothing was used but brickbats and no cement whatever was used in the construction.

"In making up my estimate I have given you an allowance for depths in accordance with the original profile, and not according to the profile left by the excavation made by Harrison Construction Co.

"As I stated to you before, I cannot at this time see my way clear to allow you for sheeting between Stations 71 plus 70 and 72 plus 47. For the sheeting left in at Station 72 we allow you twelve feet.

"I have allowed you extra excavation on the extra brickwork and also for timber cradle and timber foundation, also for piers of excessive size across the Elizabethtown Water Company's property.

"I have established a price of fifty cents per cubic yard for the removal of difficult material, for this is in excess of the price already paid you for quicksand over the same point. The only place that seventy-five cents has been allowed was on the first section, where the major portion of this allowance was given as a flat price for the removal of material, no quicksand classification having been mentioned.

"The estimate for this month brings the additional price of 67 cents per foot for 18-inch brickwork down to date. We have extended the estimate for trench to Station 66 plus 25 and on Folts' ditch to Station 69 plus 55, I think; and have allowed you an estimate of 600 feet on the tunnel.

"Yours very truly,

"Alexander Potter."

"Section 4.—The work of laying the sewer on this section may be completed before the presentation of the next estimate, when the work of cleaning the sewer and repairing leaks existing on this section will be systemmatically commenced.

"The rains of the past month while generally seriously affecting the sewer construction, have been of some value in enabling us to more speedily locate the leakage in the sewer.

"Section 5.—An examination of the progress map will show

that this section has been practically completed excepting the work on South Orange Avenue in the Borough of Vailsburg, where, if the contractor has reasonably good weather, the work will be completed within the next six weeks.

"I present herewith final estimate upon the main stem of the Fifth Section and the Lyons Avenue branch. This will enable the manufacturing district of the Town of Irvington to connect immediately with the sewer.

"I endeavored to have the inspection by the three engineers appointed for this purpose by the Joint Meeting, but on account of a death in the family of one of the committee this inspection could not be made last week. I would recommend that the payment of this final estimate on this section of the work be made as soon as this inspection is completed and the report of the three engineers submitted to the Secretary to your Body.

"The storm of the early part of last month caused serious accident to a portion of the sewer on Springfield Avenue. The sewer on this street is constructed on a grade of three feet in one hundred, about the steepest grade we have in the existing Joint Trunk Sewer. The trench had been refilled but a short time before the storm and the telford macadam roadway placed back over the trench. The rain water coming down Springfield Avenue undermined the macadam and washed away the recently filled in and soft material from underneath it. After this material had been washed away the macadam fell upon the sewer and crushed it. Gravel and stones in large quantities found their way into the sewer through this opening, with the result that about 250 feet of sewer was replaced by the contractor.

"Section 6.—Work upon the Sixth Section is progressing slowly. The contractors are now getting out of the quicksand excavation encountered along Millburn Avenue. The work during the coming month should advance more rapidly than it has during the past two months, during which time the contractors have been conducting the work at a serious loss.

"I present herewith progress map and also bills for services in accordance with contract.

"Respectfully submitted,

"Alexander Potter."

Mr. Jones moved that the report be received. Motion was duly seconded, and on vote being taken was carried.

A form of application for Elizabeth to connect with the sewer was submitted by Mr. Potter.

Counsel stated that the form of application was all right, but that the City of Elizabeth was acting under the terms of the agreement, and could not be compelled to sign any application.

Section 2—On being asked, Mr. Potter said he would recom-

mend that the Joint Meeting formally accept the Second Section as constructed by the Harrison Construction Co.

Mr. Jones moved that the Second Section of the sewer be accepted as recommended by the Engineer and that final payment be made the contractor in accordance with the terms of the contract. Motion was duly seconded, and on vote being taken was carried.

Section 3—Question of the amount of quicksand to be allowed contractor taken up.

After discussion, Mr. Jones moved that the question as to the amount of quicksand, in controversy between Mr. Potter and Mr. Bassett, be referred to the Executive Committee for a report. Motion was duly seconded, and on vote being taken was carried.

Fifth Section taken up.

Mr. Jones moved that that portion of the Fifth Section of the sewer on Lyons Avenue, which was referred to the Engineer of the City of Newark and the Engineer of the Town of Irvington in conjunction with the Engineer of the Joint Meeting for a report, be accepted by the Joint Meeting, provided the several Engineers make a favorable report in writing to the Secretary of the Joint Meeting, on the construction of said portion of the sewer. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Elizabeth, N. J., September 1, 1903.

"William Rollinson, Esq.,

"Sec. Essex Co. Joint Sewer Commission.

"Dear Sir:—

"As you probably know, the roadbed of Morris Avenue in the City of Summit and through the Township of Springfield is being dug up for the purpose of constructing a lateral sewer for the benefit of the people of Summit. I find that, as far as that part of the Avenue which passes through Springfield is concerned, this work is being done without proper authority from the Board of Chosen Freeholders, or other municipal body, and have therefore this day given notice to the Summit Common Council to have it stopped. I will also serve notice upon the contractors.

"John K. English.

"Township Attorney of Springfield Township, N. J."

Dr. Campbell stated that the root of the trouble was that the

property owners abutting on the sewer wanted the privilege of connecting.

It was moved that the matter be referred to the representatives from Summit and Millburn to make an adjustment with the authorities of Springfield and report on same to the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Freye moved the adoption of the following resolution:

"Resolved, That the several municipalities contracting for the construction of the Joint Outlet Sewer may connect their local sewer systems with the Trunk Sewer upon filing with the Secretary of the Joint Meeting a certificate of the Engineer, approving such connection, but subject to all rules and regulations adopted or to be adopted."

Motion was duly seconded, and on vote being taken was carried.

The following communications were read:

"September 8, 1903.

"Joint Meeting.

"Gentlemen:—On August 25th I directed my Assistant Engineer, Mr. Goldfogle, to make an examination of the sewers on the Sixth Section. I hand you herewith his report to me in reference to a portion of the work which he examined and which he found to be imperfectly constructed.

"In accordance with this report, and on account of certain strict orders previously issued to all inspectors upon the work, which orders had thus evidently been violated by the inspector in charge of this particular work found to be imperfect, I was obliged to take action to the full extent of my authority in these matters and lay off Mr. Geo. Hand, the inspector in charge, pending such time as your board should meet and take such action in regard to his discharge as seems proper to you.

"I have temporarily placed Mr. John E. Schmidt as inspector upon this work. Mr. Schmidt has been doing efficient inspection work upon the Millburn local sewers.

"Yours respectfully,

"Alexander Potter."

"August 28th, 1903.

"Mr. Alexander Potter,
"Chief Engineer.

"On August 25th you directed me to make an examination of the joints of the 24-inch sewer pipe now being laid on Section 6. At the trench just below the Short Hills Road the lower half of

the pipe was covered by water, owing to the breaking of a pump a short time before my arrival. I examined the joints at this place in their completed state, as well as the conditions allowed, and found nothing to criticize.

"In the trench just above Short Hills Road an examination of the uncompleted joints of the upper 4 or 5 pipes (not yet finished with cement bevel) showed that the strands of jute and the tar cement had not been caulked at all (or very imperfectly) into the annular space of the pipe, with the result that the ring of tar cement could easily be removed by hand and could not fulfill its function of adding to the water-tightness of the joint. After these defects were pointed out to Mr. Hand, the inspector, he fetched two iron caulking tools and set a man caulking the jute in the joints complained of.

"Mr. Robert Potter assisted in examining the faulty joints above mentioned. I wish further to state that the foreman on the last named trench disclaimed any responsibility as to the construction of the pipe joint, claiming that the inspector had passed the joints as acceptable.

"Very respectfully,

"DAVID GOLDFOGLE,
"Assistant Engineer."

After discussion, Mr. Potter stated that he would not recommend reinstating Mr. Hand as inspector.

Counsel advised that no action be taken by the Joint Meeting in the matter except with the concurrence of the Engineer, because under his contract with the Joint Meeting the Engineer is held responsible for good construction and that the reinstating of an inspector in opposition to the advice of the Engineer would tend to relieve him of his responsibility under the contract.

Mr. Freye moved that the matter of discharging or reinstating Mr. Hand as inspector be left with the Engineer. Motion was duly seconded, and on vote being taken was carried.

Bill of Engineer, in the sum of $2,363.20, was read.

It was stated that the Engineer was charging five per cent. commission on the actual cost of construction, which, if continued, would be considerably in excess of amount fixed in his contract.

Counsel advised that under the contract with the Engineer he was entitled to extra compensation where the size of the sewer had been materially increased over plans approved at the time of execution of his contract, but that he had no right to charge

commission on money expended for the excavating of extra quicksand, rock, etc.

Counsel further stated that the question of what money was due the Engineer should be definitely settled at once.

Mr. Zimmerman moved that the Permanent Chairman, Secretary, Chairman of the Executive Committee, Treasurer and Counsel constitute a committee to take the matter up and fix the commissions due the Engineer under his contract with the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Freye moved that the bill of the Engineer be referred to committee appointed to fix commissions due Engineer, and if after investigation the bill seemed to them to be correct, that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Harrison Construction Co.	$13,966.36
Harrison Construction Co.	3,965.66
Earle & Dougherty	5,802.49
James P. Hall	2,807.97
Costa Construction Co.	12,730.37
Elmer Day	30.00
Theo. W. Hall	91.00
Chas. E. Derivaux	59.50
Geo. C. Hand	91.00
Martin Lannon	91.00
Wm. H. Van Iderstine	91.00
James Farrell	91.00
Geo. W. Hayward	91.00
John Wander	91.00
Timothy Barrett	108.50
G. W. Aspden	10.50
E. G. Delaney	91.00
John Spies	91.00
Wm. Welsher	87.50
Chas. Campbell	77.00
R. A. Simmons	1.50
S. Leschziner & Co.	54.16
Wm. B. Adams	125.00
Henry Keenan & Son	15.00
P. H. & J. Conlan	453.33
Orange Journal	10.40
S. M. Davey	4.30

"On the East Branch or Branch Sewer, designated as AQT, $10,000.

"On the First Division, West Branch, designated as AB, $15,000.

"On the Second and Third Divisions, West Branch, designated as BKL, $5,000.

"On the Summit and Millburn Branch, designated as BI, $5,000.

"And further, that the Secretary be directed to give notice to the various municipalities of said assessment and the proportion to be paid by each, and further, that said moneys be paid to the Treasurer of the Joint Meeting within fifteen days from the 22d day of September, 1903."

Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Newark, N. J., September 17, 1903.

"Mr. William Rollinson,
"Secretary, etc.,
"Joint Meeting, Newark, N. J.

"Dear Sir:—

"In case I should not be able to be present at the meeting to be held next Tuesday, I wish you would have the enclosed letter from Alvah A. Clark, Esq., read and some action taken on it.

"It has been represented to me that the owner of the property in question has endeavored to take advantage of the situation, and to prevent the restoration of the flow of the spring, by filling it in and other devices, in order to secure the $500, while he is, in fact, suffering no injury. It seems to me, therefore, that an investigation should be made on behalf of the Joint Meeting as to the facts in the case; and if, as a fact, the spring has been injured, we should know it, in order to avoid litigation. A committee, in my opinion, should be appointed for this purpose.

"Yours very truly,

"Adrian Riker."

On motion the communication was received and placed on file.

Communication from Alvah A. Clark, counsel for Mr. Weppler, was read.

Mr. Harrison, the contractor on the Second Section, on being called on, said that when they left the work the spring on Weppler's property was full and seemed to be in good condition.

Mr. Speir moved that a special committee of three be appointed by the Chair to investigate the question of Mr. Weppler's

Grover Bros.	66.90
N. Y. & N. J. Telephone Co.	10.20
Wm. Rollinson	131.80

Mr. Jones moved that when the meeting adjourned it would adjourn to meet at the call of the chair.

Motion was duly seconded and carried.

WM. ROLLINSON,
Secretary.

Joint Meeting of September 10, 1903.

On roll being called it was found that there was not a majority of the municipalities represented, and on motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of September 22, 1903.
Special Meeting.

In the absence of the Permanent Chairman, the Secretary called the meeting to order.

Mr. Speir nominated Mr. Jones to act as Chairman.

Nomination was duly seconded.

On motion the nominations were closed.

On vote being taken Mr. Jones was duly elected to act as Chairman.

On roll being called it was found that a majority of the municipalities were represented.

On motion the reading of the minutes of the previous meeting was dispensed with.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of thirty-five thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

spring, in accordance with the recommendation of Counsel. Motion was duly seconded, and on vote being taken was carried.

Chair appointed Messrs. Speir, Jones and Campbell to serve on the committee.

Communication from Mr. Coddington, of the Board of Freeholders of Union, was read, to the effect that the road at the junction of Bayway and Lindsley Street was in bad condition.

Mr. Potter said that when Mr. Shea left the road it was in good condition, and that he had arranged with Mr. McCloud, a contractor, to do the necessary filling in after the ground had settled. Mr. Potter further stated that he would see to it personally that the road was repaired.

On motion the communication was received and placed on file.

The following communication was read:

"September 9, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"At the meeting of the Joint Meeting last night, after my recommendation was made accepting the entire work upon the Second Section and a portion of the Fifth Section, and had been concurred in by your board, a discussion arose from which it was evident that a difference of opinion exists as to the degree of water tightness and perfection that is expected from the contractors upon their finished work.

"I deem it to be my duty, therefore, for the best interests of the Board to immediately withdraw my acceptance, recommendations and final estimates upon these Sections, and the same are hereby withdrawn, the work to stand as if no such recommendation and estimates had been presented on my part, until I may be able to determine the mind of the Board in regard to this matter and take only such action as they may desire of me.

"Yours respectfully,
"Alexander Potter."

Mr. Speir stated that the question in point was: Was the work done in accordance with the specification or not? If the work was in accordance with the specifications, the Engineer's withdrawal of his recommendation would have no effect. But if, on the other hand, the Engineer had certified to the sewer which was not properly constructed, then he was personally responsible.

Mr. Potter stated that the work was in every way in accord-

ance with the specifications and was substantially water tight, but that it was not absolutely water tight, and for this reason he had sent the notice to the Secretary so there might be no mistake in the matter.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That Mr. Edward Rankin, Sewerage Engineer for the Board of Works of the City of Newark, be employed to examine the Second Section of the Joint Trunk Sewer and report in writing: First, as to its construction and amount of leakage in percentage; second, as to whether or not the sewer was laid and constructed at proper gradients and in the lines shown and prescribed on the plans furnished by Alexander Potter, as nearly as desirable, and that said Joint Sewer will successfully operate and furnish the sewerage capacity to each of the municipalities concerned to the amounts prescribed in the contract between said municipalities, that said sewer is substantially water tight, so that its capacity for the discharge shall not be materially lessened by the presence of ground water in the pipes; thirdly, as to what is a reasonable definition, as applied to pipe or branch sewers, of the phrase 'substantially water tight.'"

Motion was duly seconded, and on vote being taken was carried.

On motion the Engineer's communication was received and placed on file.

The following report was read:

"Newark, N. J., September 18, 1903.

"To the Joint Meeting:

"Gentlemen:—In accordance with the resolution passed by the Joint Meeting, requesting us to make a careful examination of the Lyons Avenue Sewer and report as to its condition in respect to certain complaints which had been brought against it, we met in Irvington on Monday, September 14, 1903, and proceeded to the Lyons Avenue Sewer.

"A thorough examination of the entire sewer from the interior was made by us from manhole to manhole, the nature of our examination being such as would show up imperfections, if they existed. The brickwork in the manholes was also carefully examined by us to determine the seepage therein, and the line and grade of the sewer given special attention. The present condition of the surface of the street was carefully noted, together with other physical conditions.

"We have, therefore, to report the following findings:

"(a) That the present condition of the sewer indicates care-

ful construction, especially so when the difficulties which were overcome are taken into consideration, this sewer having been constructed for almost its entire length through such materials as quicksand, bulls liver, boulders and water.

"(b) The alignment of the sewer, both as to grade and line, is perfect, the velocity of flow in the sewer being such as to prevent the deposit of solid matter and sedimentation in the sewers.

"(c) That the leakage in this section is not more than should be expected when we take into consideration the nature of the ground through which the sewer is built and the number of lateral sewers connected with it, and does not materially diminish the capacity of the sewers.

"(d) That the surface of the street is now in satisfactory condition, the street having been put in order by the Street Commissioner of Irvington, under agreement with the contractor, except that at near Chester Avenue a little more surface trimming is necessary.

"Respectfully submitted,

"EDWARD S. RANKIN,
"Engineer of Sewers, Newark, N. J.
"CARL MUELLER,
"Town Engineer of Irvington, N. J.
"ALEXANDER POTTER,
"Chief Engineer of Joint Sewer."

After discussion, Mr. Speir said that inasmuch as the Engineers called in had made such a favorable report on that portion of the Fifth Section referred to them, that he would move that the final estimate on the main stem of the Fifth Section and the Lyons Avenue Branch be accepted in accordance with the recommendation of the Engineer at the last meeting, and that the contractors, Earle & Dougherty, be paid the moneys due them as estimated by the Engineer in accordance with the terms of the contract. Motion was duly seconded, and on vote being taken was carried.

Mr. Sharp, of Irvington, stated that the roads in Irvington had not been put back in proper condition, and asked that the matter be taken up and some action taken to repair the roads.

After discussion the Engineer stated that he would give the matter his attention and see to it that the road was properly replaced.

Mr. Zimmerman presented bill of Frank W. Snyder, in the sum of $75.00, for repairing Clinton Street in the Borough of Vailsburg.

On motion the bill was referred to Counsel.

Dr. Campbell moved that John H. Schmidt be appointed an inspector on the sewer to take the place of Geo. C. Hand, and further, that said appointment take effect as of the date he started to work on the sewer. Motion was duly seconded, and on vote being taken was carried.

Dr. Campbell reported that he had been in communication with the authorities of Springfield in regard to the laying of the sewer in Morris Avenue, and that they demanded the privilege of tapping into the sewer, not merely on Morris Avenue, which taken alone might be reasonable, but on Millburn and Springfield Avenues as well. Dr. Campbell further reported that he had promised that work on the sewer would stop fifty feet from the terminus of the Sixth Section on Morris Avenue until some settlement had been agreed upon.

Mr. Kenney moved that the report be received.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of October 8, 1903.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Speir moved that the minutes be approved as printed with the exceptions as noted by the Secretary. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir reported that the Executive Committee had taken up the matter of the amount of compensation to be allowed Mr. Bassett for quicksand, but that the committee could not as yet make a recommendation to the Joint Meeting.

On motion the report was received.

Mr. Speir moved that a warrant for $500 be deposited with the Essex County Road Board as a guarantee that South Orange Avenue in Vailsburg would be restored to as good condition as it was before the work was begun on the sewer. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Newark, N. J., Sept. 26, 1903.

"William Rollinson,
"Secy. Joint Outlet Sewer,
"No. 142 Market St., City.

"Dear Sir:—

"We would like very much to have you send us a letter that we could forward to the Fidelity & Deposit Co. of Maryland, showing that Section 2 of the Joint Outlet Sewer has been completed and accepted, so that our bond may be released.

"Hoping you will give the matter your immediate attention, we remain,

"Yours very truly,
"THE HARRISON CONSTRUCTION CO.,
"H. L. Harrison, Pres."

On motion the communication was received.

Counsel stated that under the contract the bond was to continue in force for a year after the completion of the sewer.

It was moved that the Secretary be instructed to notify the Harrison Construction Company that the Joint Meeting would not consent to releasing the surety, but would hold them to the terms of the contract. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Jersey City, Sept. 24, 1903.

"Joint Meeting,
"142 Market St.,
"Newark, N. J.

"Gentlemen:—

"Owing to numerous delays beyond my control, I find that I will be unable to finish contract for Section No. 4 by time specified, viz., October 3. These delays have been due:

"First—To inability to get pipe because of freight blockade in the West.

"Second—To my not having proper right of way on Meadowbrook Avenue along South Orange and Maplewood Traction line.

"Third—To excessive rains during last three months.

"I therefore request an extension of sixty days and fully expect to complete the work by that time.

"Respectfully yours,
"JAS. P. HALL."

Counsel advised that before any extension of time was granted the consent of the surety on the bond should be obtained, but that

from what he could gather of the facts of the case he would advise that no action be taken in the matter.

On motion the communication was received and placed on the table.

Mr. Baumann raised the point that the time allowed Earle & Dougherty under their contract had expired.

On motion the Secretary was instructed to notify Earle & Dougherty that they would be held to the terms of the contract.

The following communication was read:

"September 29, 1903.

"William Rollinson, Esq.,
"Secretary, etc.,
"142 Market Street,
"Newark, N. J.

"Dear Sir:—

"Theodore C. Faitoute, who lives in Union Township along the line of the Essex Cross County Sewer, and not far from Morris Avenue, has engaged me to present a claim against the Joint Meeting for damages done to his property by reason of the change of grade of the street in front of his house and barn made by your people in order to allow your sewer to pass at that point. Before the change in grade was made, the water on the easterly side of the street passed down the gutter therein to the brook. Since the change in the grade was made and the street has been elevated, the water passes into and through his cow yard to his damage.

"Also on the westerly side of the street, the water collects in his garden, and there stands, also to his damage.

"If the Joint Meeting is disposed to adjust this matter, please so advise me at once.

"Very truly yours,
"N. C. J. English."

On motion the communication was received and referred to Counsel for report.

The regular monthly report of the Engineer was read as follows:

"October 8, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present herewith my report for the month of September. The estimates presented herewith show that the amounts due the contractors on the various sections are as follows:

Section 3, Costa Construction Co.	$11,502.16
Section 4, James P. Hall	2,317.13
Section 5, Earle & Dougherty	5,975.58
Section 6, Harrison Construction Co.	7,809.91
Total	$27,605.08

"The net amount of the estimates for August was $44,614.13.

"The approximate amount of money to paid to the contractors at your next monthly meeting will be as follows:

Section 3, Costa Construction Company	$12,000.00
Section 4, James P. Hall	4,000.00
Section 5, Earle & Dougherty (final on portion)	15,000.00
Section 6, Harrison Construction Company	4,000.00
Total	$35,000.00

"Section 1.—This month there is nothing of special interest to report in connection with Section 1.

"Section 2.—The Engineer retained by the Commission to inspect this section has made an examination of the sewer and his report should be in the hands of your Commission in the near future. The work entailed in connection with this report is considerable.

"In our inspection of this sewer we discovered that in a manhole in Kean's woods the cover had been removed and the manhole filled up with an assortment of broken pipe, fence posts, tree stumps, etc. Some action should be taken by your Commission looking to the co-operation of the various municipalities through which the sewer runs to prevent such tampering with the system.

"Section 3.—I regret to corroborate my previous opinion that work on this section will not be completed until March.

"Progress on shaft No. 2, so-called, during the month was fair; on shaft No. 5, very disappointing. The average daily rate of progress during the month on shaft No. 2 was twelve feet; on shaft No. 5, not more than four feet. On shaft No. 2 both headings are good and better progress should be made during the month of October. In shaft No. 5 the closer proximity of the tunnel to the surface, and the existence of a strata of gravel at the roof of the tunnel produce conditions against which progress is secured slowly, and only by careful, persistent effort. It is to be hoped that as we recede from the shaft better conditions will prevail, and markedly better progress made.

"To date, the tunnel is about one-third completed. Work on the open cuts in this section is also being prosecuted under difficulties. At Station 111, which is near the west terminus of the tunnel, quicksand is encountered at six feet from the surface, and at Station 117 the construction of the sewer is by no means an easy task.

"Section 4.—The work on this section is proceeding slowly, but should be completed by the end of the year. Work on repairing portions of this sewer found upon examination to be defective is progressing slowly, but should be completed as soon as the balance of the work is finished.

"Section 5.—During the month it is hoped that the Augusta Street line and the main sewer to Clinton Avenue will be ready for acceptance, also the line up to 19th Avenue in Newark. A small gap in Springfield Avenue alone remains uncompleted, but this should be finished within ten days or two weeks. In adjourning this meeting, it would, therefore, be well to arrange for another meeting to be convened at the call of the Chair, to accept this portion of the Fifth Section, and thus to enable the Town of Irvington to make use of the greater portion of its system of sewers.

"The Lyons Avenue syphon has been completed during the month. The high water in the Elizabeth River made the construction of this work difficult and expensive.

"Among the bills for extra labor in this section is one for re-excavating and relaying the sewer on Munn Avenue. This was caused by a mistake in judgment of one of the Inspectors, whose work has usually been highly satisfactory. My recommendation is that the bill be paid by the Commission.

"Remarkably slow progress is being made on South Orange Avenue, due to the condition of the material encountered by the contractor on this street. Newark's local system draining into this district is already completed. The character of the excavation encountered by the Newark contractor on top of the hill, and that of the Joint Sewer contractors in the Valley differ entirely; in Newark it is high and dry, in Vailsburg it is low and wet. No basis of comparison exists between the relative speed at which the two pieces of work have been conducted.

"In order to facilitate the work a modification of the grades and sizes was adopted over a short section, whereby by flattening the grade on South Orange Avenue, between Munn Avenue and the Creek, and increasing the size from 12-inch to 15-inch we were enabled to save about three feet cutting at the corner of Munn Avenue. Had the change not been made still slower progress would have been secured.

"This change could not have been foreseen until we actually determined the nature of the ground at the time the work was undertaken, and if the season had been reasonably dry no trouble would have been experienced whatever, even at a greater depth.

"Section 6.—Work on this section is progressing favorably and with the exception of replacing defective pipe and stopping leakage, should be completed within one month.

"I present herewith bill for $450.00 for ten recording gauges for measuring the flow in the sewers, which have been duly re-

ceived. We will need two more, and I request authority to purchase the same.

"I present herewith progress map showing the work done up to date, and also work done during the month, and work still remaining to be done. An examination of this progress map will show that we are rapidly approaching the completion of the work. I also present bill for services in accordance with contract.

"Respectfully submitted,

"ALEXANDER POTTER."

On motion the report was received and placed on file.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Costa Construction Company	$11,502.46
Jas. P. Hall	2,317.13
Earle & Dougherty	5,975.53
Harrison Construction Company	7,809.91
Jas. Pastola	27.00
Jas. Farrell	91.00
Martin Lannen	91.00
Chas. Campbell	91.00
J. H. Schmidt, Jr.	91.00
Jno. Spies	91.00
Timothy Barrett	105.00
S. Leschziner & Co.	54.16
N. Y. & N. J. Telephone Co.	21.90
R. A. Simmons	1.35
Orange Journal Publishing Co.	24.80
S. M. Davy	4.40
Adrian Riker	1,000.00
Wm. Rollinson	125.60
Wm. B. Adams	100.00
Theo. W. Hall	91.00
E. G. Delaney	91.00
F. J. Dibble	450.00
Chas. Rust	6.00

Treasurer stated that there was an error in the final payment made Harrison Construction Company on Section 2 of $46.34, which was still due the Harrison Construction Company under the contract.

Mr. Speir moved that the Harrison Construction Company be paid the $46.34 they were entitled to under their contract. Motion was duly seconded, and on vote being taken was carried.

Bill of Engineer, in sum of $1,250.00, on account of commissions due under contract, was read.

Mr. Speir stated that both the Treasurer and Counsel had been over the moneys paid the Engineer, and that in their estimation he could be paid the bill and still remain well within the money due under his contract.

It was moved that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

Question of the compensation due the Engineer was discussed.

Mr. Speir submitted the following report of the committee to whom the question of compensation due the Engineer was referred:

"The special committee report that they have gone over the questions of compensation due to Mr. Potter, and have agreed to recommend the following as a basis of compromise:

"That Mr. Potter, on the completion of the Joint Trunk Sewer, receive five per cent. on the amounts paid to the contractors under their six contracts, less the amounts heretofore paid to him on account of services, including the payment to him of $1,250.00, which he claimed as an extra, and less five per cent. of $40,000, which is fixed and stated as and for the sum that the contracts have exceeded the estimates of the Engineer under his original plans."

On motion the report was accepted.

Mr. Potter stated that while he would agree to the five per cent. basis as a compromise he would not consent to have the $1,250.00 paid for surveying new lines, etc., included in his total compensation, but that it should be considered as separate and be charged as an extra.

After further discussion, on advice of Counsel, Mr. Speir moved that the action of the board in ordering the payment to the Engineer of $1,250.00, on account of the commissions due under the contract, be rescinded. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of thirty thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract in the following manner, to wit:

"On the East Branch or Branch Sewer, designated as AQT, $10,000.00.

"On the First Division, West Branch, designated as AB, $15,000.00.

"On the Second and Third Divisions, designated as BKL, $5,000.00.

"Resolved further, That the Secretary be instructed to give notice to the various municipalities of said assessment, and the proportion to be paid by each, and further, that said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the eighth day of October, 1903."

Motion was duly seconded, and on vote being taken was carried.

Secretary raised the question as to whether the Board was acting within its jurisdiction in accepting the Main Stem of the Fifth Section, at the special meeting.

Counsel advised that the resolution be re-passed.

Mr. Speir offered the following resolution for adoption:

"Resolved, That the Main Stem of the Fifth Section and the Lyons Avenue Branch be accepted in accordance with the recommendation of the Engineer at meeting held Sept. 8th, and that Earle & Dougherty be paid the sum of $5,341.28, on account of final payment, as estimated by the Engineer, in accordance with the terms of the contract."

Mr. Kenney moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones reported on the matter of Weppler's spring, which had been referred to a special committee. That they had examined the spring and found that the contractor had put in an underdrain, but that the flow of the spring did not seem to be diminished, and that as far as they could see the spring was in good condition.

On motion the report was received.

Mr. Speir moved that the communication of Mr. Clark, counsel for Mr. Weppler, be referred to Counsel of the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Engineer's report taken up in detail.

It was moved that the bill for extra labor on Munn Avenue, in the sum of $75.00, be paid as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Baumann moved that the Engineer be authorized to purchase two more recording gauges at $45.00 per gauge. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the action of the Engineer in changing the grade and size of the sewer in Munn Avenue be approved. Motion was duly seconded, and on vote being taken was carried.

Mr. Freye moved that the Town of Irvington be authorized to connect their laterals with that part of the Second Section of the sewer which had been accepted by the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

On being asked by the Chair, Mr. Potter said that on further consideration he would accept the compromise in its entirety as recommended by the special committee to fix his compensation.

Mr. Speir moved that the resolution to rescind the motion authorizing the payment of $1,250.00 to the Engineer, on account of commissions, be stricken from the minutes. Motion was duly seconded, and on vote being taken was carried.

It was moved that when the meeting adjourned it would adjourn to two weeks from to-night. Motion was duly seconded, and on vote being taken was carried.

Mr. Bassett said that he hoped to have the lower portion of the Third Section ready for acceptance at the next meeting and asked if the final payment on this work had been taken into consideration when the assessment was passed.

Mr. Jones moved that the assessment on the First Division, West Branch, designated as AB, be made twenty thousand dollars instead of fifteen thousand dollars, as previously passed by the Board. Motion was duly seconded, and on vote being taken was

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of October 15, 1903.

On roll being called it was found that there was not a quorum present.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of November 5, 1903.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Speir moved that the reading of the minutes be dispensed with and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir reported that the Executive Committee had taken up the matter of the compensation due the Costa Construction Co. for quicksand, extras, etc., which had been referred to it, and offered the following report and resolution for adoption by the Joint Meeting:

"The Engineer of the Joint Meeting having reported that the Costa Construction Co., the contractor for the Third Section of the Joint Sewer, has substantially completed the work between Stations 026 and 73-33, and having recommended that the said part of the sewer should be accepted, under certain provisions, and the Executive Committee having recommended the adjustment of all claims for extra work upon said part of the sewer at the sum of sixteen hundred and eighty-two dollars and fifty cents ($1,682.50), and recommended the payment thereof upon the condition that the contractor accept said payment in full for all extra work upon said part of the Third Section of the sewer, and upon further consideration that the contractor agrees to do without further charge certain additional work upon said part of the sewer, as specified by the Engineer, the performance of said agreement to be guaranteed by Carrol P. Bassett and by all reserve commissions in the hands of the Joint Meeting to the credit of the contractor, subject to their prior application, in accordance with the terms of the contract and under which they are retained.

"Resolved, That the recommendation of the Engineer be con-

final estimate upon said portion of said Third Section as presented by the Engineer, together with said sum of $1,682.50 for extra work, be paid less the reserve of three per cent. as provided in the contract."

Mr. Jones moved that the recommendations of the Executive Committee be concurred in, and that the resolution be adopted by the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Permanent Chairman and Secretary of the Joint Meeting be authorized to execute the contract with the Costa Construction Co., as outlined by the previous resolution, after same had been drawn and approved by Counsel. Motion was duly seconded, and on vote being taken was carried.

Recommendations of the Executive Committee read as follows:

"Recommended that the bill of Timothy Barrett, in the sum of $150 for services as Inspector, be paid."

Mr. Baumann moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended that Inspectors working under air pressure after November 1, 1903, be paid at the rate of five dollars per day."

It was moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended that Edward P. Brown be paid fifty-one dollars for earth used for 'filling in' over the sewer on the Fourth Section."

Mr. Speir moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

"Recommended, That for the right to construct the Joint Trunk Sewer in Springfield Avenue, in the Township of Springfield, that the owners of property in said Township of Springfield and abutting upon those portions of Springfield Avenue and Millburn Avenue, in which the sewer is constructed, be granted the right to connect with said Joint Trunk Sewer from both sides of Springfield Avenue, and from the southeast side of Millburn

Avenue; and resolved, further, that the Permanent Chairman and the Secretary of the Joint Meeting be authorized to execute an agreement with the Township of Springfield to this effect, when same has been drawn and approved by Counsel for the Joint Meeting."

Dr. Campbell moved that the resolution be adopted as recommended by the Executive Committee. Mr. Jones seconded the motion, and on vote being taken was carried.

Resolution recommended for adoption by Executive Committee, was read as follows:

"Resolved, That there be paid to the Township of Uuion, in the County of Union, the sum of seven hundred dollars, being one hundred dollars in addition to the payment already authorized, in settlement of all obligations assumed in the contract with the municipality for the right to construct the sewer in its streets, so far as relates to the restoring of the surface of such streets and the surfacing and resurfacing of the same with broken stone."

It was moved that the resolution be adopted. Motion was duly seconded, and on vote being taken was carried.

Report of Edward S. Rankin, on the construction of the Second Section, was read:

"Newark, N. J., Oct. 14, 1903.

"To the Honorable, the Joint Outlet Sewer Commissioners:

"Gentlemen:—In accordance with your resolution passed September 22nd, requesting me to examine and report on the Second Section of the Joint Outlet Sewer, I herewith respectfully present the following report:

"I have made a careful examination, going over the surface and also through the entire length of the sewer, noting the condition of the parts visible above ground and of the masonry from the interior, paying particular attention to any signs of leakage or irregularity of flow, also to the size and shape of the sewer as built. I have also run levels over the entire length of the section, taking elevations at the bottom of each manhole in order to determine the grade at which the sewer was built.

"I have also carefully gauged the flow of ground water at each end of the section, thus ascertaining the amount of leakage both in the Second Section itself and in the sewers tributary thereto.

"From this examination I find as follows:

"On the surface I find several places near the westerly end of the section where the water, flowing across the line of the sewer from the hillside, has washed out gullies, in one place exposing the masonry. These places should be refilled as soon as possible and

steps taken to prevent their recurrence, as otherwise serious damage might result.

"Aside from this I have no suggestion to offer. The trench seems to have been properly filled and all roads left in good condition.

"As to the interior, so far as can now be seen, the sewer has been well built. The masonry presents a fairly smooth surface, with no projections or noticeable breaks in the grade. These, if they existed, would be at once perceptible from the backing up of the water. The shape is true, and the size is in no case less and will average about one inch greater in diameter than called for in the contract. No cracks have developed in the arch. From the maps furnished me by your Engineer, I find the line and grade to be substantially as designed, my levels showing a practically uniform grade of twelve-hundredths of a foot in 100 feet for the entire length. In my inspection of the interior I find but three points where there is any perceptible leakage—in Salem Road, at the crossing of Morris Avenue and at Roselle Road east of the Lehigh Valley Railroad. The greater part of this can probably be stopped by calking, although the entire amount is not sufficient to materially reduce the capacity of the sewer. Of course as shown later by the gaugings there is considerable more seepage, but not enough in any one spot to be perceptible.

"On my first visit I discovered a considerable leakage from the sewer into the Elizabeth River near Union Avenue. This was evidenced by the smaller flow east of the river and verified by putting coloring matter into the sewer, which appeared in a small stream flowing into the river. On my final visit to this locality I found the flow had entirely stopped and gaugings on each side of the river showed no leakage. It would be well to have this point watched in case the leak should appear again, as the river forms part of the Elizabeth Water Supply. I am informed by Mr. Potter that during construction the water was diverted into the river at this point, and it is probable that the opening was improperly closed, but has silted up during the recent storm.

"The result of the gaugings is as follows:

"At the west end of the section, 2.49 cu. ft. per second, or 1,613,520 gallons per day. This represents the amount coming in from the other sections of the main trunk sewer and all branches and laterals.

"At the east end of the section, 3.64 cu. ft. per second, or 2,358,720 gallons per day, the difference, 745,200 gallons per day, representing the quantity of leakage in the Second Section itself. The total capacity of a 42-inch sewer with a grade of 0.12 per hundred feet, figured by Kutter's formula with the coefficient equals 0.015, is equal to 19,440,000 gallons per day, which makes the percentage of leakage equal to 3 8-10 per cent., and the percentage for the entire sewer and branches now built about 12 per

cent. It must be remembered that these gaugings were taken shortly after the exceptionally heavy storm of last week; that the ground above the sewer was waterlogged, and that much water must at present be entering the upper sections through the ends of laterals now being constructed.

"It is but just to mention that a rough gauging taken at Union Avenue, before the storm, showed a flow of but 375,840 gallons per day or less than one-quarter of the present flow.

"In his report as Consulting Engineer on this work, Mr. James Owen, after accepting as correct Mr. Potter's estimate as to population and quantity of sewage to be provided for, recommended that the capacity of the sewer be increased 33 per cent. to provide for ground water. This recommendation was adopted in the final design, so that if the sewer ran one-third full before any house connections were made, it would still be large enough to provide to each of the municipalities the amounts prescribed in the contract.

"It should also be considered that the additional size, mentioned above, adds to its capacity at least 1,000,000 gallons per day.

"As to the final point, what is a reasonable definition as applied to pipe or branch sewers, of the phrase 'substantially watertight,' conditions vary so widely and the opinion of engineers differ so greatly that it is difficult to state any fixed percentage of the capacity or quantity of flow per mile to be allowed.

"As stated above, Mr. Owen recommends that 33 per cent. be added to the estimated flow of sewage to provide for ground water, and makes this statement in connection therewith: 'After experience of a number of years, I am obliged to state very emphatically that under the present system of manufacturing and laying the tile pipe drains, it is impossible to make them tight. It is therefore absolutely necessary to include the probable amount of ground water that will enter the Joint Outlet Sewer in determining its capacity.'

"In his report on the East Branch Intercepting Sewer for the City of Newark, Mr. Adam, the Engineer, remarks: 'There will be some ground water finding its way into the sewers, as no masonry can be constructed perfectly watertight.' An allowance of 15 per cent. of the estimated sewage flow was made and the pipes calculated to run half full.

"The sewers of East Orange from careful gaugings show the ground water to be practically equal in volume to the sewage proper, about 650,000 gallons per day, or 24,000 gallons per day per mile.

"Mr. A. P. Boller, C. E., commenting on this, says: 'The character of the excavation (mostly through quicksand) rendered tight work absolutely impossible, and it is purely a matter of individual judgment whether the leakage is in excess of what it fairly should be.'

"Prof. H. M. Ogden, of Cornell University, in his book on sewer design, states that it is doubtful whether a sewer can be made watertight under ordinary conditions and methods of construction. He quotes from a number of gaugings of existing sewers, laboratory experiments and recommendations of different engineers with results varying from 5 per cent. to 60 per cent. of the capacity of the sewers.

"Additional examples might be given, but enough has been said to show that no fixed rule can be established, but with the existing conditions, I should consider the sewer under discussion to easily fulfill the condition of being substantially watertight.

"Respectfully submitted,

"Edward S. Rankin."

The Engineer read his regular monthly report.

"November 5, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg leave to present herewith my usual monthly report for the month of October. The estimates presented herewith show that the amounts due the contractors on the various sections are as follows:

Section 3, Costa Construction Co. (final)	$ 7,239.77
Section 3, Costa Construction Co. (approximate)	12,496.92
Section 4, James P. Hall	2,813.99
Section 5, Earle & Dougherty (final)	2,057.00
Section 5, Earle & Dougherty (approximate)	4,467.57
Section 6, Harrison Construction Co.	2,308.71
Total	$31,383.96

"The net amount of the estimates for September was $44,614.13.

"The approximate amount of money to be paid to the contractors at your next monthly meeting will be as follows:

Section 3, Costa Construction Company	$12,000.00
Section 4, James P. Hall (final)	9,500.00
Section 5, Earle & Dougherty (final)	11,000.00
Section 6, Harrison Construction Co. (final)	11,000.00
Total	$43,500.00

"The Borough of Roselle Park requests information concerning the construction of the weir manhole at the point where the Roselle Park sewerage enters the Joint Trunk Sewer. Shall this manhole be paid for by the Joint Meeting, or by the Borough of Roselle Park? The expense of this construction will be about $150.00.

"I was duly furnished with a copy of Mr. Rankin's report upon the condition of the Second Section and also upon the question of permissible leakage in pipe sewers to bring them within the scope of the term 'substantially watertight.'

"The mileage of constructed sewers at present tributary to the upper end of the Second Section is 21.5 miles, one and one-half miles of which is 38-inch brick sewer, two miles of 24 and 22-inch, the remainder from 20 to 8-inch. Eighty per cent. of these sewers were constructed in wet ground with a permanent head of water over the sewers of from 2 to 25 feet. Of the 1,613,520 gallons reported by Mr. Rankin, a large percentage entered the sewers directly from the open end of the work under construction, through the bottom of sixty uncompleted flush tanks and through sewers being cleaned and repaired.

"As Mr. Rankin points out, these measurements were taken within four days after a rainfall of twelve inches in forty-eight hours, causing the ground to become thoroughly waterlogged and producing conditions which occur but once in many years. When the water, entering the sewers through these temporary openings, is excluded, the 33 per cent. capacity allotted in the design for ground water will not be reached, and the normal leakage will not exceed 25,000 gallons per day per mile. The measurement of water on November 2, at the upper end of Section 2, was 850,000 gallons.

"Supplementing the cases cited by Mr. Rankin, Professor Folwell, an authority on sewerage, records the following: At Malden, Mass., pipe sewers which were all underdrained, had an infiltration of 83,000 gallons per day. At Westboro, Mass., a 15-inch sewer in wet soil had a leakage of 1,320,000 gallons per mile on one section, and 610,000 gallons on another. In East Orange, N. J., the leakage was 43,250 gallons per mile in sewers from 10 to 24 inches, and in a brick sewer 2 foot by 3 foot in wet soil, a portion of which was built in tunnel, a leakage of 570,000 gallons per mile. In a city in New York State, the name of which the professor does not record, the leakage on a system of pipe sewers ranging from 8 inches to 24 inches, which was constructed in wet soil, was 1,300,000 gallons per mile. The average leakage in many Massachusetts cities and towns is 80,000 gallons per mile.

"It will be seen that the leakage on the work so far reported upon is less than that of other cities similarly situated.

"Mr. Rankin's report requires very little comment from me, the only point which, in my judgment, requires special mention, is his reference to the opening left in the sewer at the Elizabeth River. It was not clear in my mind what impression would be made upon the minds of the laymen by this portion of Mr. Rankin's report, and to have this matter cleared up I wrote him the following letter:

"'Dear Sir:—In perusing your report to the Joint Meeting it has occurred to me that a false impression might be conveyed to the lay mind by your reference to the opening in the sewer at the Elizabeth River; that either the contractor or the engineer was responsible for covering up something that should not have been permitted.

"'As I stated to you at the time of your first examination, and also subsequently in your office, and as Mr. Harrison also stated to you, the opening through which you mention having afterward sent coloring matter was purposely left in the sewer so as to prevent the water coming down from the uncompleted Third and Fifth Sections passing down into the Second Section before it was accepted. The heavy rainstorm which we had immediately before your second examination was responsible for filling up the 8-inch pipe leading from the sewer to the river. An examination of this pipe from the inside of the sewer and also from the outside, will clearly demonstrate to you the fact that no attempt whatever has been made by the contractor to plug up this opening either permanently or temporarily, and in view of the fact that your report might be misconstrued, especially if given out for publication without explanation, I would ask that you be so kind as to arrange to visit this point with me at your earliest possible convenience so that you may see for yourself that no attempt has been made to close up this opening surreptitiously or otherwise, and so remove any misapprehension which may have existed in your own mind and that may go forth in this matter. Would it be convenient for you to meet me on Thursday afternoon of this week? If so, I will be pleased to meet you with my carriage in front of the Town Hall, in Irvington, at 3 o'clock. If this would not be a convenient hour for you, please set one that will be satisfactory to you.'

"Mr. Rankin replied to this letter as follows:

"'Dear Sir:—As I was away all last week, your letter was not received until late Saturday afternoon.

"'It seems to me that the question as to whether the opening was left intentionally or whether it was closed purposely or accidentally, has nothing to do with the case. The fact remains that there has been a leakage into the river, and my only point was that this should be permanently and securely closed before the sewer was used.

"'I do not question your statement at all, and do not consider that my remark reflects on your work or Mr. Harrison's, but I do consider it very important that the matter should not be overlooked.

"'I am perfectly willing to go over the ground with you again if you wish it, and would suggest Wednesday, at any time most convenient for you.'

"From this correspondence it is perfectly clear as to the inten-

tion of the opening in the sewer, which will be permanently sealed before sewage is turned into the system.

"I present herewith bill of the Challenge Windmill Company for $350.00, for furnishing and erecting a windmill on the property of George Kuback, constructed in accordance with the contract which the Joint Meeting authorized me to make with this company.

"I hand herewith bill from F. J. Dibble for two recording gauges, purchased from him in accordance with the resolution of your Board.

"I beg to call the attention of your Board to a previous recommendation made by me regarding the offer of Mr. Patrick Larney to clean out the debris as it collects under the iron pipe at the crossing of the Elizabeth River, and request action thereon.

"I present herewith final estimates for a portion of the Third Section and a portion of the Fifth Section, all of which is colored red on the acceptance progress map presented herewith. In preparing the final estimate of the Third Section I have not included in the item of quicksand an amount of 1,346 cubic yards, which is claimed by the contractor. This yardage represents the difference between the amount which I deemed the contractor was entitled to under a fair interpretation of the contract, and the amount claimed by him, and for which amount he is willing to waive all claims for additional compensation on items which technically he may be entitled to claim and legally recover. It rests with the Joint Meeting whether or not this item will be allowed him. It means that for $1,682.50 over what has been allowed him by me the contractor agrees to give a quit claim to the Commission on this portion of his contract, but as the allowance of this claim was referred to the Executive Committee, I do not see how I can include it, as I thought at first proper for me to do, without the resolution of the Board authorizing me to do so.

"In regard to the acceptance of this portion of the work under discussion, I have to say that there still remains to be done certain matters or things, such as the refilling of the ditches, and the stoppage of leakage, which the 3 per cent., still retained, will in my judgment, be sufficient to complete. At the same time these things were contemplated by the contract to be performed before the work was accepted, I therefore withhold my signature to the final estimate until the Joint Meeting passes upon the question of acceptance under the conditions stated.

"The contractor is willing to obligate himself in any way the Joint Meeting might designate to complete the work as called for by the contract.

"I desire permission to change the line of the tunnel to avoid the underground construction started by the contractor in an attempt to build the tunnel by open heading. This will involve a departure from the right of way, throwing the line nearer Mr. Kuback's house.

"The final estimate on a portion of the Fifth Section, presented herewith, extends along Augusta Street to Springfield Avenue and along Springfield Avenue to Grove Street, also from Lyons Avenue to Clinton Avenue, west, in the Town of Irvington. It is hoped that by the next meeting the entire Fifth Section will be finished, but I do not think the sewer will be cleaned out and the necessary repairs made in time for acceptance at the next meeting of the Commission.

"The work upon the Fourth Section and upon the Sixth Section is so far advanced that I hope that it will be ready for acceptance prior to the next meeting.

"The storm washed out a portion of the road that was constructed across the Whittingham property, and it will be necessary to construct a bridge across this road in order to prevent similar washings in the future.

"Inspector Barrett, in charge of the tunnel work, has made a request for an increase in pay, which, in my judgment, should be allowed.

"I attach hereto bills of Messrs. Rankin and Miller for services in connection with the Lyons Avenue sewer. I also present a bill for myself for $750.00 on account of services as Engineer, under the contract, as amended by mutual agreement. I hand herewith progress maps, one showing the work performed up to November 1, and the work still remaining to be done, the other an acceptance progress map, showing the portions accepted or to be accepted at this meeting.

"Respectfully submitted,

"ALEXANDER POTTER."

On motion the report was received and placed on file.

Mr. Speir moved that the report of Mr. Potter, together with that of Mr. Rankin, be printed and sent out by the Secretary with the printed minutes. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter's report taken up in detail.

Mr. Speir moved that the Engineer be instructed to notify the Borough of Roselle Park that the cost of constructing the manhole at the point where the sewerage from Roselle Park enters the Joint Trunk Sewer must be borne by Roselle Park. Motion was duly seconded and carried.

Question of employing Patrick Larney to remove debris that banked up against the sewer during freshets, where the sewer crosses the brook, was discussed.

Secretary reported that Mr. Larney had refused to take the

one hundred and twenty-five dollars voted him as compensation for right of way for underdrain and in settlement of damages sustained.

It was moved that the matter of compensation for underdrain and removal of debris be referred to Mr. Freye to take up with Mr. Larney. Motion was duly seconded and carried.

Mr. Potter reported that the shaft first sunk in the tunnel section would interfere very materially with the new method of tunneling under air pressure and recommended that the line of the sewer be changed to avoid the shaft.

After discussion, on being asked, Mr. Bassett said he would release the Joint Meeting from all money that might be due him for work done on the shaft or material furnished.

It was moved that the Engineer be instructed to arrange with Mr. Kuback for the extra right of way made necessary by the change in the line.

Question of building bridge over stream in W. C. Whittingham's property taken up.

Mr. Speir moved that the matter be referred to the Engineer to make a report as to the status of the case and the cost of constructing a bridge, if same were necessary. Motion was duly seconded and carried.

Counsel said that inasmuch as the Joint Trunk Sewer was practically completed and would be entirely completed in the near future, that he thought it would be advisable to have a committee appointed to draft a form of permanent organization for the Joint Meeting.

Mr. Jones moved that the Chairman of the Joint Meeting, the Chairman of the Executive Committee, and Mr. Baumann be appointed to constitute a committee to follow out suggestions of Counsel. Motion was duly seconded and carried.

Question of paying Frank Snyder $25.00 for repairing Clinton Street, in Vailsburg, taken up.

Counsel stated that Vailsburg had acted without the knowledge or authority of the Joint Meeting in ordering the street repaired, and as a matter of fact had debarred the Joint Meeting from holding the contractor in the event of their paying Snyder's bill.

Mr. Speir moved that the bill be paid. Motion was duly seconded.

After further discussion Mr. Speir, with the consent of the seconder, withdrew his motion.

Rules and regulations taken up and read.

Mr. Speir moved that the proposed Rules and Regulations which had been printed and read be approved by the Joint Meeting as printed, with the interlineation of the words "drip from engine" after the word steam, in paragraph (c) under heading "Nature and Restrictions of Discharge," and with the substitution for the first paragraph under heading "Payments for Permits," of the following amendment: "There shall be a charge of ten dollars for permission to make any connection with the Joint Sewer, or its branches, which charge shall be paid by the municipality within which the connection is made, to the Treasurer of the Joint Meeting."

Motion was duly seconded, and on vote being taken was carried.

Mr. Kenney moved that the Secretary be authorized to get bids for printing five thousand copies of the Rules and Regulations, and award contract to lowest bidder. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

John Spies	$	91.00
W. H. Van Iderstine		101.50
John Wander		94.50
Martin Lannen		98.00
Geo. W. Hayward		94.50
James Farrell		87.50
Chas. Campbell		94.50
Theo. W. Hall		94.50
J. H. Schmidt		94.50
E. G. Delaney		94.50
William Rollinson		125.60
W. B. Adams		100.00
S. Leschziner & Co.		54.16
N. Y. & N. J. Telephone Company		7.10
Grover Bros.		11.85
Orange Journal Publishing Co.		18.20
Sarah M. Davy		5.25

Challenge Windmill & Feedmill Company	350.00
James Martin	10.00
Edward S. Rankin	150.00
Edward S. Rankin	25.00
Carl Mueller	25.00
F. J. Dibble	90.00
Alexander Potter	750.00
Costa Construction Company	12,496.92
James P. Hall	2,813.99
Earle & Dougherty	4,467.57
Harrison Construction Company	2,308.71

Bill of Costa Construction Company, on account of final payment and in settlement of all claims on Section 3, between Stations X026 and 73-33, in the sum of $8,934.80, was read.

Mr. Speir moved that that section of the sewer between Stations X026 and 73-33, be accepted and that the Costa Construction Company be paid the $8,934.80, on account of final payment.

Bill of Earle & Dougherty, on account of final payment on that portion of Section 5, extending along Augusta Street to Springfield Avenue, and along Springfield Avenue to Grove Street, also from Lyons Avenue to Clinton Avenue West, in the sum of $2,057.00, was read.

It was moved that Earle & Dougherty be paid the final payment, as per estimate. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of thirty-five thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

"On the First Division, West Branch, designated as AB, $20,000.

"On the East Branch or Branch Sewer, designated as AQT, $5,000.

"On the Second and Third Divisions, West Branch, designated as BKL, $5,000.

"On the Millburn and Summit Divisions, designated as BI, $5,000.

"And further, that the Secretary be directed to notify the various municipalities of said assessment and the portion to be paid by each, and be it further resolved, that said moneys be paid

to the Treasurer of the Joint Meeting within twenty days from the 5th day of November, 1903."

Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of December 10, 1903.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Speir moved that the reading of the minutes of the previous meeting be dispensed with, and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

On being called on, Mr. Speir, Chairman of the Executive Committee, said that he had no report to make.

The Engineer read his regular monthly report:

"December 10, 1903.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg leave to present herewith my usual monthly report for the month of November.

"The estimates presented herewith show that the amounts due the various contractors are as follows:

Section 3, Costa Construction Co.	$13,807.01
Section 4, James P. Hall	3,268.86
Section 5, Earle & Dougherty	2,463.71
Section 6, Harrison Construction Co.	887.23
Total	$20,426.81

"The net amount of the estimates for the month of October was $31,383.96.

"I estimated that there would be needed for payment to the contractors this month the sum of $43,500.00 on the assumption that final estimates would be presented to J. P. Hall on Section 4, Earle & Dougherty on Section 5, and Harrison Construction Co. on Section 6, but the unusual and unprecedented long cold snap accompanied by snow has greatly retarded the work being done on these three sections, and it is impossible for me at this time to

recommend the final acceptance of this work, although at the time of writing this report all pipe laying covered by the contracts on Sections 4, 5 and 6 is completed and all that remains to be done is the backfilling of the trenches.

"As all the municipalities interested in the construction of the Fifth Section are anxious to make connection with the Joint Trunk Sewer, I will be in a position to report the acceptance of the entire work on Sections 4, 5 and 6 by the 23rd of this month, if your Commission think it important enough to call an extra meeting for the purpose of accepting this work. If this meeting is called, provision must be made for the payment to the contractors upon these sections as follows:

Section 4, James P. Hall	$8,000.00
Section 5, Earle & Dougherty	7,000.00
Section 6, Harrison Construction Co.	9,000.00

Complaint has been made by the authorities of Union Township concerning the condition of the road at Westfield Avenue in Section 1. I notified Contractor Shea in regard to this road, and he gave instructions to Mr. W. H. Welden, of Rahway, to proceed with the work of repairing this road, limiting him to an expenditure of $25.00. Mr. Welden refused to do this work for less than $125.00, which amount in my judgment is more than the work is worth. It is my opinion that $75.00 is good compensation for the work to be done. I request instructions in regard to this matter. My recommendation is that five tons of stone be purchased and spread until spring, when the repairs can be made more readily and cheaply than at this season of the year.

"My attention has been called to a culvert on Bayway near North Avenue, in the City of Elizabeth. In the construction of the sewer through rock cut we were obliged to remove a small stone drain crossing the street, and in its place put a temporary wooden box drain until such a time as the earth has permanently settled over our trench, when a proper drain will be put in.

"A complaint was presented to the Board from the Faitoute property. The construction of the sewer in the highway in front of this property dammed up water slightly upon it, but an underdrain was constructed in connection with the sewer at this point, and the low ground on the Faitoute property connected with this underdrain. If the mouth of this drain be kept open the land will not be subject to overflow.

"I had a visit from Mr. Patrick Larney and also his son in reference to a settlement to be made with him for the right of way for the sub-drain built across his property outside of the fifteen foot right of way. Mr. Larney expressed a willingness to accept the amount appropriated by the Joint Meeting provided an additional sum of $30 was paid him for damage caused by a slight diversion of the Elizabeth River on his property.

"At the last meeting of the Board I reported that a change

of right of way on Kuback's property would be necessary to avoid interference with the underground construction started by the contractor at the tunnel. I have been unable to negotiate with Mr. Kuback for the new right of way for less than $125, $50 of which to be cash and $75 to pay for the expense of plumbing in his house and barn.

"The cost of this new right of way is offset by the shortening of the line of the tunnel approximately six feet, thus effecting the saving of $102.00 in the cost of construction.

"Work upon the tunnel in the Third Section is progressing favorably during the month. The amount of work completed as reported during the last month was six hundred and forty (640) feet; the total length of tunnel reported as completed to date is two thousand two hundred and twenty-five (2,225) feet, showing that there is now two-thirds of the work in the tunnel completed. If the same rate of progress is sustained until the completion, the first of March should see the tunnel completely constructed. In my judgment the sewer can be put in use some time during the month of March next.

"The open work on this section is nearly completed, as will be seen by the progress map presented herewith. The contractors should have this open work completed by the first of January.

"Work upon the Rahway River crossing is proceeding satisfactorily. The contractors are performing this work by force account as no provision was made in the original contract for the construction of the river crossing. The reason for this was that when the contract was awarded the method of crossing the river was undetermined. Experiments and observations have been made during the year with the hope of assisting us in determining the method of crossing this river. The plan adopted is to cross the river by a gravity line and the plan presented herewith shows the method of constructing the crossing.

"I present an agreement with Mary Smith to sell a strip of land at the Rahway River, which is required in connection with the river crossing at that point. The strip is approximately 150 feet by 50 feet. The consideration is $100.00. I would recommend the execution of this agreement on the part of the Joint Meeting, and that a warrant be drawn in favor of Mary Smith, to be paid upon the signing of a proper instrument.

"As stated in a previous part of this report, all pipe laying on this section has been completed, but was not completed in time to present the final estimate to this meeting. The contractor has presented a number of claims for extra compensation on account of discrepancies between the statements of the amount of material used upon the work as prepared by his men and those returned by the Inspectors. These claims are now being adjusted and will be ready to report upon in the final estimate, any time after the 21st of December.

"I present herewith bill of J. P. Hall Co., contractors on the Fourth Section, for expenses incurred by reason of the restrictions placed upon them on Meadowbrook Lane. The property owners refused to allow him the use of the sidewalk, and the street railway company refused to allow him to block their tracks except under certain restrictions, which the contractor claims cost him the amount stated in the claim attached hereto. The contractors were given to understand that they would have a thirty foot right of way, but at this particular point their right of way was less than fifteen feet. I would suggest reference to Counsel for opinion.

"I present bill from J. P. Hall & Company for $50.00, claimed for delay in entering upon lands of the D., L. & W. Railway. The facts are as follows: After securing permission from the Chief Engineer of the D., L. & W. Railroad to proceed with the work of construction I ordered the contractor to go to work on this property. The section boss having no orders to permit us to proceed forcibly stopped the contractor's men two days in succession, hence the claim. I suggest reference of this matter to Counsel for opinion.

"I call your attention to the fact that where our sewer crosses the right of way of James Corey, in South Orange Township, for a distance of some three hundred feet, the sewer, instead of being on the property of Mr. Corey, has been placed so that the entire sewer is six inches within the right of way of the D., L. & W. R. R. I have presented this matter to the railroad authorities and they are preparing a deed granting us the right of way along this strip without compensation, embodying the usual clauses for rights of way across railroad property.

"Pipe laying on Section 5 has been completed, but the estimate, presented herewith, does not include all pipe laid. I will be able to present final estimate upon this work at any time after the 21st of December.

"It will be remembered that the construction of the Lyons Avenue sewer was stopped within one hundred and eighty-five feet of the Newark city line because the contractors claimed force account upon this work. Their claim was based upon the fact that the depth exceeded that upon which they were asked to bid, owing to the change in the local plans for that district of the City of Newark. As the work was costing the contractor seven or eight dollars a foot, and our allowance to him under his contract could not exceed four dollars a foot, it was deemed wisest to suspend operations and throw this work in with a greater length of similar work which the City of Newark was obliged to undertake.

"The City of Newark let the contract for this section of sewer to the Harrison Construction Company at a flat rate of $7.00 per foot, which, with allowances such as rock and patent joints, will bring the cost to about $7.75 per foot. This work has

been constructed and the question arises as to the payment of the same.

"Work upon Section 6 has been completed as far as the sewer construction is concerned. At your last meeting I recommended the construction of a bridge with concrete abutments crossing the roadway built under our agreement with Mr. Whittingham. I present herewith plan of proposed bridge. At the prices established under our contract with the Harrison Construction Company this work will cost $900.00, which includes the construction of the bridge and abutments and also a certain amount of filling in.

"The construction of this bridge and abutments is absolutely necessary, but its need could not have been foreseen prior to the extraordinary flood of October 8.

"If it is the wish of the Board to accept the sewers at the earliest possible moment, I would recommend that on adjourning this meeting it be adjourned until Wednesday, December 23rd, 1903.

"I present herewith bill for services in accordance with contract, also progress map.

"Yours very respectfully,

"ALEXANDER POTTER."

Mr. Jones moved that the report be received and placed on file.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the Board of Education of Union Township be paid at a rate not exceeding one dollar a foot for the right of way through the property of the school and that they be given the right to connect the school house with the Joint Sewer, provided that such connection be made under the rules and regulations of the Joint Meeting, and at the expense of the said Board of Education and under the supervision of the Engineer for the Joint Meeting."

Motion was duly seconded, and on vote being taken was carried.

Recommendations from report of Engineer were taken up in detail.

Mr. Speir moved that when the meeting adjourned it would adjourn to meet on Wednesday, December 23, at 8 p. m. Motion was duly seconded, and on vote being taken was carried.

As to Repairing Road at Westfield Avenue.

Mr. Speir moved that five tons of stone be purchased and spread on road at Westfield Avenue, as recommended by the

Engineer. Motion was duly seconded, and on vote being taken was carried.

Patrick Larney Right of Way.

Mr. Freye reported that Mr. Larney would be willing to make an agreement and, as a matter of fact, had done so, but that his son had persuaded him not to execute the release.

It was moved that Patrick Larney be paid the thirty dollars for the diversion in the brook, as recommended by Engineer, in addition to the one hundred and twenty-five dollars already voted paid as compensation for underdrain and damages sustained during construction of sewer, upon his execution of the proper instruments drawn by Counsel for the Joint Meeting, it being understood that Mr. Larney be given thirty days within which to accept proposition. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that in compensation for right of way on Kuback property, Mr. Kuback be paid fifty dollars in cash, and that the Joint Meeting also pay for expense of plumbing in house and barn, said plumbing, however, not to exceed seventy-five dollars. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Joint Meeting concur in the recommendation of the Engineer and purchase a plot 50 feet by 150 feet from Mary Jane Smith, for the sum of one hundred dollars. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter, on being asked in regard to James P. Hall's claim, said that amounted to $495.12.

Mr. Kinney moved that the James P. Hall claim be referred to Counsel. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that James P. Hall's bill for delay be referred to Counsel. Motion was duly seconded, and on vote being taken was carried.

Regarding the D., L. & W. right of way, it was moved that the deed of the D. L. & W. R. R. Co. be accepted, subject to the approval of Counsel, and further, that in the event of the deed requiring execution on the part of the Joint Meeting, that the Secretary and Permanent Chairman be authorized to execute said

deed. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Harrison Construction Company be paid the amount due for completing the sewer in Lyons Avenue, as certified to by Mr. Potter, upon the execution of an order to that effect from Earle & Dougherty. Motion was duly seconded, and on vote being taken was carried.

Dr. Campbell moved that the recommendation of the Engineer regarding Whittingham's bridge be concurred in and that the plans submitted for a bridge on W. C. Whittingham's property be approved and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter submitted plan for crossing river at Mary Jane Smith's property.

It was moved that the plan submitted be approved and placed on file. Motion was duly seconded, and on vote being taken was carried.

Communication from the Elizabeth Gas Company, enclosing bill in the sum of $16.30, was read.

Mr. Jones moved that the matter be referred to the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of fifteen thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner:

"On the First Division, West Branch, designated as AB, $15,000.

"And that the Secretary of the Joint Meeting be directed to notify the various municipalities of said assessment and the proportions to be paid by each; and further, that said money be paid to the Treasurer of the Joint Meeting within twenty days from the 10th day of December, 1903."

Motion was duly seconded, and on vote being taken was carried.

Counsel reported on James P. Hall's claim for fifty dollars, which had been referred to him, that under the contract the contractor agreed to work when directed by the Engineer, and that in his opinion Mr. Hall's claim should be rejected.

Mr. Kenney moved that the recommendation of Counsel be concurred in. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

W. H. Van Iderstine	$ 94.50
Timothy Barrett	150.00
John Spies	94.50
Chas. Campbell	94.50
John Wander	94.50
G. W. Hayward	87.50
Theo. W. Hall	87.50
E. G. Delaney	63.00
J. H. Schmidt, Jr.	77.00
Wm. Rollinson	132.70
M. F. Lannen	94.50
Wm. B. Adams	125.00
Mrs. Jas. Berney	4.00
Grover Bros.	10.75
S. M. Davy	5.15
Chas. Rust	7.00
S. Leschziner & Co.	54.16
N. Y. & N. J. Telephone Co.	3.90
Elizabethtown Water Co.	32.07
Costa Construction Co.	13,807.01
Jas. P. Hall	2,463.71
Harrison Construction Co.	887.23
Alexander Potter	600.00

Mr. Speir moved that the Secretary be authorized to have printed the necessary blanks for application to connect with sewer, called for under the Rules and Regulations. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of December 23, 1903.

On roll being called it was found that all of the municipalities were represented.

On motion the reading of the minutes of the previous meeting was dispensed with.

The Engineer reported that he had hoped to report that the Fifth Section of the sewer had been completed and recommend final acceptance on the part of the Joint Meeting, but that owing principally to the cold weather, work had been delayed and that there was about seven feet still to be constructed. He further stated that a considerable portion had not been cleaned and that he could not recommend the acceptance of the Fifth Section in its entirety.

Counsel advised that inasmuch as the section had not been completed the Joint Meeting could not formally accept the work, but that he thought Newark could connect on that portion which was completed without waiting for a formal acceptance on the part of the Joint Meeting and without relieving the contractor from any responsibility under the contract.

It was reported that Earle & Dougherty had not executed the order of the Joint Meeting to pay the Harrison Construction Company for constructing the Newark end of the Fifth Section.

On motion the matter was laid over until the next meeting.

Mr. Rankin's bill, in the sum of $80.34 for services as engineer on Newark end of Fifth Section, was read, and on motion laid on the table.

Engineer reported that there was a difference of about one hundred dollars between him and James P. Hall, contractor for the Fourth Section, Mr. Hall claiming that owing to delay in his regular order, he had been forced to buy pipes from local firms so that he might complete the sewer through the Manda property within the time specified in the contract between Mr. Manda and the Joint Meeting.

On motion the question was referred to Counsel for opinion.

Mr. Potter stated that the Sixth Section had been completed by the Harrison Construction Company, with the exception of the bridge over the brook in the Whittingham property, but that inasmuch as the bridge was not in the contract, he would recommend that the Sixth Section be formally accepted and that nine hundred

dollars be withheld from moneys due the contractor under the contract until the bridge had been completed.

Mr. Speir moved the following:

"Resolved, That the Sixth Section be accepted as constructed by the Harrison Construction Company, and that the $9,568.92 be paid the contractors on account of final payment as estimated by Engineer, less the sum of $900.00, which should be retained until the completion of the bridge on the Whittingham property."

Motion was duly seconded, and on vote being taken was carried.

Mr. Potter reported that he had condemned a connection on one of the laterals made under the supervision of a plumber, licensed by Irvington, and that he would like to impress on the board the necessity of guarding against a similar occurrence, as a bad connection of this kind might very materially injure the Joint Sewer.

After discussion, Mr. Speir moved that where the Joint Trunk Sewer is to be tapped in the several municipalities, that the local inspectors be appointed ex officio inspectors of the Joint Meeting, if in the opinion of the Engineer of the Joint Meeting they are competent; and further, that the Joint Meeting pay the municipality in which the tap is made the sum of one dollar toward the cost of the inspection of each connection with the Joint Sewer. Motion was duly seconded, and on vote being taken was carried.

It was moved that the Treasurer of the Joint Meeting be instructed to pay to the Harrison Construction Company the $8,668.92 due under the final estimate, at once, and not wait until the expiration of the fifteen days allowed under the contract. Motion was duly seconded, and on vote being taken was carried.

Bill of John Wanda, in the sum of $63.00 for services as Inspector, was read. It was moved that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

Communication from Counsel was read, advising that the claim of James P. Hall, which had been referred to him at the previous meeting, be rejected by the Joint Meeting.

On motion the communication was received and placed on file.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of January 7, 1904

On roll being called it was found that all the municipalities were represented.

Mr. Speir moved that the reading of the minutes of the meeting held December 10, 1903, be dispensed with, and the minutes approved as printed. Motion was duly seconded, and on vote being taken was carried.

Secretary read minutes of meeting held December 23, 1903.

Mr. Speir moved that the minutes be approved as read. Carried.

Mr. Speir reported that the Executive Committee could only report progress, but that they hoped to have a full report at the next meeting.

The Engineer read his regular monthly report:

"January 7, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:

"I beg leave to present herewith my regular monthly report for the month of December.

"The estimates presented herewith show that the amounts due the various contractors are as follows:

Section 3, Costa Construction Company	$11,877.10
Section 4, James P. Hall (final)	9,703.70
Section 5, Earle & Dougherty (on acct.)	13,664.25
Section 5, Earle & Dougherty (on acct.)	1,558.63
Section 6, Harrison Construction Company (final)	710.04
Total	$37,513.72

"The net amount of the estimates for the month of November was $20,426.81.

"The approximate amount of money to be paid on the Third Section at your next monthly meeting will be $15,000.

"I present herewith final estimates on the Fourth and Fifth Sections of the Joint Trunk Sewer. The unprecedented cold spell has greatly prevented the contractors on these sections from completing the cleaning up of their work as well as it should be, and while the three per cent. retention is more than sufficient to satisfactorily complete the work, still I think it a matter of prudence to retain $1,000.00 in each case until the weather moderates and the condition of the trenches made more satisfactory.

"I present herewith releases from the contractors on these

two sections. The final estimate of Earle & Dougherty does not contain the bill of the Harrison Construction Company for $1,606.83, a separate estimate being presented for this claim.

"Work upon the Third Section has not advanced as favorably as we had hoped. The holiday season interfered with the work in the tunnel; furthermore the character of the excavated material changed for the worse towards the East end of Shaft No. 2, the ground being so open that it was with difficulty that the air could be held even to construct a 3-foot section of sewer in one day. We have successfully passed this difficult point and better progress is being made. Work was also resumed last night on the west heading of Shaft No. 5, the work on which was abandoned nearly a month ago.

"There still remains to be completed sixty-two feet between the open cut work east of the tunnel and the east heading of Shaft No. 2; five hundred and seventy-nine feet between Shaft No. 2 and Shaft No. 5; and four hundred and seventy-two feet between the west heading of Shaft No. 5 and the point where the open cut work was started west of the tunnel. There also remains to be constructed less than two hundred feet of sewer in the open cut, the excavation for all of which has been completed.

"Two-thirds of the work on the Rahway River Crossing has been completed. The actual amount of sewer built in the tunnel is two thousand six hundred and sixty-two (2,662) feet, out of a total length of three thousand seven hundred and seventy-two (3,773) feet, or seventy per cent. of the whole. A rate of progress of eighteen feet a day from both shafts would enable us to report the completion of the work at your March meeting. A rate of progress of thirteen feet has been secured from the beginning of the work, but for a considerable portion of this time the operations were confined to one shaft.

"I present herewith forms of application for Contractors' License, Contractors' Bond, application of Sewer Connections, etc., for your final approval before printing. The Plumbers' License should be prepared with stubs. The application for sewer connection, permit and Inspector's certificate should be on one form with stubs attached.

"There was omitted from the final estimate of the Sixth Section an item of nine hundred and seventy-six cubic yards of extra excavation at seventy-five cents per cubic yard, amounting to $732.00, for which a separate estimate is presented herewith.

"I present herewith progress map showing work completed to December 31, 1903.

"Respectfully submitted,

"Alexander Potter."

On motion the report was received and placed on file.

Mr. Jones moved that Mr. Rankin's bill, which had been laid

on the table, be brought before the board for consideration. Motion was duly seconded and carried.

It was moved that Edward S. Rankin's bill in the sum of $80.34, for services as Engineer on Newark end of Fifth Section, be paid. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Costa Construction Company be paid the sum of $11,877.10 for work done on Section 3, as estimated by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that James P. Hall, contractor on the Fourth Section, be paid the sum of $9,703.70 on account of work done. Motion was duly seconded and carried.

Mr. Jones moved the resolution be reconsidered. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that James P. Hall be paid the sum of $8,703.70 on account of work done on Section 4, as per contract. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Earle & Dougherty, contractors on the Fifth Section, be paid the sum of $12,664.25 on account of work done, as per contract. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Harrison Construction Company be paid the sum of $710.04, which had been omitted from the final payment, as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the form of application and permit for sewer connection submitted by Engineer be approved and that he be directed to have two thousand copies printed in book form. Motion was duly seconded, and on vote being taken was carried.

It was moved that the form of contractor's license submitted by the Engineer be approved, and two hundred copies printed, subject, however, to approval of Counsel as to form; and further, that the Secretary of the Joint Meeting be authorized to sign all licenses. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that two hundred copies of the contractor's bond be printed after Counsel had approved of same as to form. Motion was duly seconded, and on vote being taken was carried.

Counsed stated that he thought that inasmuch as the bond was for only five hundred dollars, it was unnecessary to have more than one surety on the contractors' bond.

Mr. Speir moved that on page nine, line five, of the Rules and Regulations the word "one" be substituted for the word "two," as it now appears in the printed Rules and Regulations. Motion was duly seconded, and on vote being taken was carried.

Claim of Fred Stone against Earle & Dougherty, amounting to $409.28, for materials furnished, was read.

Mr. Potter stated that he had seen Mr. Stone since the claim was presented, and that he had asked to have it withdrawn.

Claim of Eugene T. Henschell against Earle & Dougherty, in the sum of $15.00, was read. Mr. Henschell explained that it was for damages to his house caused by blasting in the sewer.

Counsel advised that claim should properly be to the contractor, and that under the contract the Joint Meeting could not hold money back except for labor performed and materials furnished.

On motion the claim was laid on the table.

Bill of Ellen Riley, in the sum of one hundred and twenty dollars, for damages to trees on right of way, was read. After discussion, Mr. Speir moved that the bill be laid on the table. Motion was duly seconded and carried.

On receiving permission, Mr. Bassett stated that he hoped to have another portion of the Third Section ready for acceptance within two weeks, and asked if it could be arranged to have a meeting called when the work was completed.

Mr. Jones moved that when the meeting adjourned it would adjourn to meet at the call of the chair. Motion was duly seconded, and on vote being taken was carried.

Communication from James P. Hall to Alexander Potter was read, stating that he would accept $57,992.30 as final estimate on Section 4, reserving, however, the right to make claims for three bills amounting altogether to the sum of $623.83.

On motion the communication was received and placed on file.

Communication from Earle & Dougherty to Alexander Potter was read, stating that they would accept the final estimate of $55,902.22 as payment in full of all claims on Section 5.

On motion communication was received and placed on file.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Francis Speir, Jr.	$ 150.00
John J. Kenney	150.00
Warren D. Frey	150.00
Chester N. Jones	150.00
Wellington Campbell	150.00
John F. Zimmerman	150.00
C. V. Baumann	150.00
W. L. Glorieux	333.33
Francis S. Phraner	600.00
Orange Journal Publishing Company	72.40
Grover Bros.	12.50
Leschziner & Co.	54.16
Alexander Potter	2,000.00
Theo. W. Hall	98.00
L. M. Davey	4.60
Edward S. Rankin	80.31
E. G. Delaney	35.00
Geo. W. Hayward	94.50
Chas. Campbell	98.00
John Spies	98.00
Timothy Barrett	155.00
W. B. Adams	100.00
William Rollinson	125.90
Jas. Bierney	4.00
J. H. Schmidt, Jr.	98.00
W. H. Van Iderstine	94.50
James F. Farrell	145.00
Mills & Yeager	61.15

Bill of the N. Y. & N. J. Telephone Company, in the sum of $21.15, was read. On motion it was referred to Mr. Adams to take up with Mr. Woodruff for adjustment.

Mr. Riker stated that Conrad Weppler was about to begin suit for the five hundred dollars for damages to spring, and asked that he be authorized to acknowledge service for the Joint Meeting.

Mr. Speir moved that Counsel be authorized to acknowledge service for the Joint Meeting in the matter of claim of Conrad Weppler.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint

Meeting the sum of twenty-three thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between said municipalities in the following manner, to wit:

"On the First Division, West Branch, designated as AB, $10,000.00.

"On the East Branch, or Branch Sewer, designated as AQT, $8,000.00.

"On the Second and Third Divisions, West Branch, designated as BKL, $5,000.00.

"And Resolved further, That the Secretary be directed to give notice to the various municipalities of said assessment, and the proportion to be paid by each. And further, that said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the 7th day of January, 1904."

Mr. Kenney seconded the motion, and on vote being taken resolution was carried.

On motion the meeting adjourned.

Wm. Rollinson,
Secretary.

Joint Meeting of January 26, 1904.

On roll being called it was found that a majority of the municipalities were represented.

On motion the reading of the minutes of the previous meeting was dispensed with.

The following report of the Engineer was read:

"January 26, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I enclose final estimate on that portion of the Third Section lying west of the tunnel except the Rahway River crossing, which is being constructed by force account. The contractor requested this estimate at this time because the retained percentages upon his contract were becoming burdensome to him.

"The sewer itself, upon which you are called to take action, is completed in a satisfactory manner, so far as such inspections as we are able to make upon it at this time would indicate. The ground water along the line of the sewer has been kept pumped out until the recent rain storm, so that it has been impossible to note the ultimate leakage in this portion of the sewer. The sewer

has been flooded since then and remains flooded. The back filling is not properly completed, nor can it be until the frost is out of the ground. In my opinion, if the Joint Meeting desires to assist the contractor, the amount of money held back is sufficient to perform any uncompleted part of the specification requirements.

"If the Joint Meeting agrees to accept this work it should be accepted with the provision that the acceptance does not relieve the contractor from his obligations under the contract.

"The tunnel is progressing satisfactorily. There remains to be completed about seven hundred and fifteen feet, and I still hope to report its completion at the March meeting.

"Yours very respectfully,

"ALEXANDER POTTER."

Mr. Kenney moved that the report be received and placed on file. Motion was duly seconded and carried.

On being called on, Counsel stated if the Engineer was satisfied that the money retained would be sufficient to complete the work in accordance with the specifications, he would advise paying the contractor the money estimated by the Engineer. Counsel further stated that if the Joint Meeting decided to pay the contractor, he would advise that the payment be made on account of contract, for if this method of payment were followed, any money that might be retained by the Joint Meeting on other portions of the Third Section would be applicable to this portion and be a further guarantee that the work would be completed in accordance with the specifications.

Mr. Bassett, acting for the Costa Construction Company, stated that he would waive all claims for extras on that portion of the sewer covered by the estimate, if the Joint Meeting would make this advance payment.

Mr. Potter stated that he believed the Joint Meeting would be safe in making the payment asked for by the Costa Construction Company.

After further discussion, Mr. Speir moved that the Costa Construction Company be paid, $6,793.92 on account of contract, as per Engineer's estimate, dated January 26, 1904, provided the Costa Construction Company embody in their receipt that the payment is in full for all claims on this portion of the work, other than those included in the estimate. Motion was duly seconded, and on vote being taken was carried.

Mr. Frey stated that the Town Council of Irvington had laid

over the payment of the last assessment until they could satisfy themselves, by checking up the estimate of the Engineer, that certain repairs on the Fifth Section had not been paid for twice.

On motion Mr. Potter was instructed to communicate with the Town Council of Irvington and explain the situation.

Mr. Frey moved that Mr. Adams be instructed to check up the final estimates of the Engineer. Motion was duly seconded and carried.

Communication from W. C. Headly, counsel for Patrick Larney, was read, stating that Mr. Larney claimed to have been damaged to the extent of one thousand dollars by the construction of the sewer through his property.

Mr. Speir moved that a committee of two, in conjunction with the Engineer, be appointed by the chair to confer with Mr. Headly, with a view to settlement in the matter of claim of Patrick Larney. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of February 4, 1904.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Jones moved that the reading of the minutes of the previous meeting be dispensed with, and that the minutes be approved as printed.

The regular monthly report of the Engineer was read:

"February 4, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I present herewith approximate estimate No. 17 for work done upon the tunnel portion of the Third Section during the month of January, and also upon the Rahway River crossing.

"We had an unfortunate accident to the boiler at Station No. 5 the day after the special meeting of the Joint Commission, which has seriously handicapped the work at that section, so that

the rate of progress of about fifteen feet a day, which had been secured for some days prior to the last meeting, has been reduced to a progress of about four feet a day since that time, on this heading. This is unfortunate considering the fact that the material through which we are excavating in this shaft is the best that has been encountered since the beginning of the work.

"In the statement of the amount of work remaining to be done in my last repart it was erroneously stated that there was 713 feet to be completed; this should have been 813 feet.

"The amount of work still remaining to be done is 675 feet of tunnel, and while it now seems improbable that this work should be completed by the next monthly meeting, still I do not see why the work should be delayed beyond the month of March.

"I would recommend that the $1,000 retained from James P. Hall, contractor on the Fourth Section, should be passed to his credit, and the work on this section be accepted.

"The services of Inspectors Hall, Van Iderstine and Hayward have been dispensed with. I have O.K.'d the bill of Inspector Hall for one week's services in January, the bill of Inspector Hayward for sixteen days during the month, the bill of Inspector Van Iderstine for the full month with one day in the month of February.

"While Inspector Spies has completed the work upon which he was engaged, I have put him on inspection work, making a thorough examination of the sewer from the outlet up. It will be necessary to retain Mr. Spies upon this work until the appointment of the permanent superintendent.

"The work of Inspector Spies has demonstrated the importance and necessity of a systematic patrol of the line, and also the necessity of having a rigid inspection of all connections with the Joint Sewer. A connection was made for the house of Senator Kean, and instead of attempting to secure from me the exact location of the branch located in the sewer for this house, the contractor broke into the sewer at the point most convenient for him, and allowed the bricks that were knocked into the sewer to remain therein, causing serious barriers to the flow of the sewer. This same offence occurred, as you will remember, in making a sewerage connection in Elizabeth near the outlet. These defects can be discovered because the sewer is large enough to crawl through, but the same thing is likely to occur on all connections that are made without the proper inspection. I would therefore urge that the rules concerning connections be rigidly enforced.

"There being no work done outside of the tunnel section this month, the progress map is omitted, as it would be of no material advantage in connection with this report.

"The bridge on the Whittingham property has been completed, and I would recommend the payment of the nine hundred dollars retained till completion.

"I would also recommend the acceptance of the Sixth Section.

"Respectfully submitted,

"Alexander Potter."

Mr. Jones moved that the report be received and placed on file. Motion was duly seconded and carried.

Mr. Frey moved that the Fourth Section of the Joint Trunk Sewer be accepted by the Joint Meeting, as recommended by the Engineer, and that James P. Hall, the contractor on this section, be paid the one thousand dollars which had been held back for final payment. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved the recommendation of the Engineer be concurred in and that the Harrison Construction Company be paid the nine hundred dollars which had been retained from their final payment on the Sixth Section. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the Engineer be authorized to employ Mr. Spies, or anyone else he might deem competent, as special inspector on the sewer. Motion was duly seconded and carried.

Mr. Kenney moved that Chas. Campbell. Inspector, be paid $94.50 for services, as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Bills of Inspectors J. H. Schmidt, Jr., and Geo. W. Hayward, in the sum of $70.50 and $56.00 respectively, were read.

Mr. Kenney moved that the bills be paid, as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Communication from James Crowell was read, stating that Earle & Dougherty had paid his claim in full.

On motion communication was received and placed on file.

Secretary reported that the Elizabethtown Gas Light Company had advised him that unless their bill of $16.30 were paid they would start suit.

Mr. Potter stated that he had examined the bill and that it was correct.

Dr. Campbell moved that the Elizabethtown Gas Light Company's bill, in the sum of $16.30, be paid. Motion was duly seconded, and on vote being taken was carried.

Bill of Fred Stone, in the sum of $213.13, for materials furnished Earle & Dougherty, was read.

On motion the bill was referred to the Engineer.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

N. Y. & N. J. Telephone Company	$ 21.15
S. Leschziner & Co.	54.16
W. B. Adams	100.00
Wm. Rollinson	134.48
Orange Journal Publishing Co.	15.00
S. M. Davy	4.65
Theo. W. Hall	24.50
James Farrell	145.00
Timothy Barrett	145.00
W. H. Van Iderstine	98.00
Noonan Bros.	4.00
Grover Bros.	50.90
John Spies	91.00
Costa Construction Company	6,459.89
Alexander Potter	1,500.00

Mr. Jones moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of ten thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by contract between said municipalities in the following manner, to wit:

"On the First Dvision, West Branch, designated as AB, $10,000.00.

"And Resolved further, That the Secretary be directed to give notice to the various municipalities of said assessment, and the proportion to be paid by each. And further, that said money be paid to the Treasurer of the Joint Meeting within twenty days from the 4th day of February, 1904."

Motion was duly seconded, and on vote being taken was carried.

Secretary reported that W. C. Headly had advised him that Patrick Larney had reconsidered his refusal to accept $155.00 in settlement of claims against the Joint Meeting, but that the time limit fixed in the resolutions had expired.

Mr. Jones moved that the time given Patrick Larney to accept the $155.00 and sign the release drawn by Counsel, be extended to March 1, 1904. Motion was duly seconded, and on vote being taken was carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of March 10, 1904.

On roll being called it was found that all of the municipalities were represented.

Mr. Speir moved that the reading of the minutes of the previous meeting be dispensed with, and that the minutes be approved as printed. Motion was duly seconded, and on vote being taken was carried.

The Engineer read his regular monthly report:

"March 10, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to present my usual monthly report, together with a map showing the progress of the tunnel to date. From this map it will be seen that there still remains to be completed about 349 feet.

"Connection of the east heading of Shaft No. 2 with the open cut work immediately east of the tunnel has been made, and the alignment and grade of the tunnel has been found to be in a satisfactory condition, the center of the tunnel meeting the center of the open cut brick work within two inches. That this heading should meet with such a slight error is particularly gratifying and reassuring, because when the heading was within forty feet of completion a well was driven over the center line of the sewer for the purpose of affording a means of pumping out the accumulation of water in the lower end of the tunnel. When the excavation in the tunnel reached a point where the well was driven, no trace of it was found, although efforts were made to find it by digging out on either side of the regular section of the tunnel. An investigation of the well from the surface indicated that in driving it struck a large boulder and slanted off from the perpendicular, which deviation was not previously observed. This failure to locate the well in the tunnel created at the time some little alarm lest the tunnel was heading the wrong direction. When the open cut work was finally reached and such good alignment was found, it was the cause of considerable satisfaction. The work reflects great credit on the assistant engineer in direct charge of the work, Mr. Irving Hawkins.

"There remains uncompleted between Shaft No. 2 and Shaft No. 5 about 120 feet and 229 feet between the west heading of Shaft No. 5 and the open cut work immediately west of the tunnel. The difficulties experienced in connecting up the east end of the tunnel with the open cut work will preclude a repetition of the same modus operandi in connecting up the west heading of Shaft

No. 5, with the open cut work. The tunnel will be carried up to within fifty or seventy-five feet of the present terminus of the constructed sewer and the gap thus left will be connected up by open cut work from the surface.

"The contractor will begin this open cut work within the next week or two, so that the tunnel should be completed before the next meeting of the Board. There remains but a small amount of work to be done at the Rahway River crossing and this work should be completed before the tunnel itself is ready for use, when the whole sewer will be available for use by all the municipalities.

"Just as soon as the headings meet between Shafts 2 and 5, I would like to have the Joint Meeting arrange to visit the tunnel work. The experience of inspecting work under air pressure is not always to be secured, and the amount of air pressure maintained in the tunnel is not so excessive but that an ordinary man with good health can stand it without inconvenience.

"The net amount of the estimate for the month on the Third Section is $5,297.75, and if the tunnel is completed before the next meeting we will require an assessment of about $7,000 for the work upon the Third Section.

"It was reported that a fire at Elizabethport had destroyed the dock constructed at the end of Bayway. On conferring with Mayor Ryan of Elizabeth, I found that it was not our dock that was burned, but one in close proximity to it. As there is much oil stored in this vicinity, it seems to me that precaution should be taken to insure the dock against loss by fire, if such an insurance can be secured, and furthermore, it should be determined if the responsibility for replacing the dock should fall upon the Joint Meeting. In my opinion, the city of Elizabeth should be consulted in reference to this matter and should be asked to insure the dock, as they are the sole beneficiaries of this construction.

"The weather is moderating to such an extent that all the contractors have been notified to go over their work and put it in the condition called for by the contract. This work consists, on Section 1, of restoring the road at the intersection of Bayway and Westfield Avenues, and repointing a number of manholes. On Section 2, of repairing a number of small leaks; on Section 3, of repairing leaks in the sewer and in manholes; on Section 4, of replacing manhole covers which are defective; on Section 5, of completing the filling in on South Orange Avenue, and repairing some of the defective manholes and manhole covers; on Section 6, filling in over the sewer at one point and repairing leaks in some manholes. This work should be completed during the month.

"If the work is completed on Section 5 during the month the $1,000 which has been withheld from the contractors on this Section should be paid at the next meeting of the Board and the work accepted.

"As the spring progresses there will be a number of requests

for connections with the Joint Sewer in the various municipalities through which the sewer passes, and the consequent need of a permanent inspector is greatly increasing.

"The examination of the sewer during the last two months shows that it is in good condition, but requires the services of a man to inspect and examine it, which, if not done, may lead to serious difficulties.

"I present bill for services amounting to $350 on account of contract percentage.

"Respectfully submitted,

"ALEXANDER POTTER."

It was moved that the report be received and placed on file. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker reported that he had received a communication from the New York Pollution Commission, asking for information in regard to the Joint Sewer, and that he had forwarded it to Mr. Potter.

Mr. Speir moved that the communication from New York Pollution Commission be referred to Engineer. Motion was duly seconded and carried.

Mr. Speir moved that the question raised by the Engineer in his report in relation to the wharf at Bayway, in Elizabeth, be referred to Counsel to take up with the proper authorities of Elizabeth. Motion was duly seconded, and on vote being taken was carried.

Bill of Geo. W. Hayward, in the sum of $35, for balance not included in last month's bill for salary as Inspector.

Mr. Hayward claimed that he was entitled to this difference, as he had reported on the work every day and had not been notified by the Engineer to stop work.

Mr. Speir moved the bill be referred to Counsel for opinion. Motion was duly seconded and carried.

Mr. Speir moved that when the meeting adjourned it would adjourn to meet at the call of the chair in lieu of the regular April meeting. Motion was duly seconded, and on vote being taken was carried.

The following communication from the Costa Construction Co. was read:

"Office of the Costa Construction Co.,
"Summit, N. J., March 8, 1904.

"Joint Outlet Sewer Commission.

"Dear Sirs:—Under our contract there are reserved in your hands the following moneys ultimately to be paid to us under the terms of the contract:

A, 3 per cent. on work from 0 to 73 plus 50	$ 1,858.29
B, 3 per cent. on work from 111 to 152	1,064.45
C, 15 per cent. on balance of the work	9,227.50
Total	$12,150.24

"We respectfully request that in addition to the current estimate for work done during the month of February, that you pay to us at this time the sum of $3,000, on account of the contract.

"We desire to say that this work has been so seriously prolonged under abnormal losses that the burden of carrying it is serious.

"Your assistance at this time will be fully appreciated.

"There remains but a trifle over 300 feet of tunnel to complete, and it should be possible to complete all portions of the work ready for final acceptance during the month of April.

"If you make this payment which is now requested there would still remain in your hands more than 10 per cent. upon the tunnel cost, and at the completion of the work there would remain at least $10,000 ultimately to be paid us.

"The moneys still remaining in your hands are certainly more than ample to ensure you in the satisfactory completion of all portions of the work. Were this not true, we would not, in spite of our necessities, ask this favor.

"Yours very truly,
"The Costa Construction Co.,
"C. P. Bassett, Treas."

Mr. Potter stated that the Joint Meeting would be perfectly safe in advancing the money asked for by the Costa Construction Co., as the retained percentages would more than secure the Joint Meeting against any contingencies that might arise.

Counsel, on being asked, said that there were no legal objections to granting the request of the Costa Construction Co.

Mr. Speir moved that the request of the Costa Construction Co. be granted, in view of the assurance of the Engineer, and that they be paid three thousand dollars on account of contract. Motion was duly seconded, and on vote being taken was carried.

Counsel, after reading the resolution passed by the Joint

Meeting, in connection with the employment of Inspectors, advised that Geo. W. Hayward was entitled to amount claimed in his bill.

Mr. Speir moved that bill of Geo. W. Hayward, in sum of thirty-five dollars, be paid on his giving a receipt in full to the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Claim of Fred Stone against Earle & Dougherty, in the sum of $210, was read.

On motion claim was referred to Engineer.

Communication from Earle & Dougherty was read, asking that they be paid the one thousand dollars held back by the Joint Meeting.

Mr. Potter reported that Earle & Dougherty had not completed the filling in over the sewer, and that he could not recommend the Section as ready for acceptance.

On motion the communication was received and placed on file.

Secretary reported that Samuel Gluckfield & Co., plumbers, were laying a pipe to connect with the Joint Sewer in Vailsburg without permission.

It was moved that the Secretary be directed to notify the plumbers to stop work until permission was officially granted. Motion was duly seconded and carried.

Bill of Geo. Kubach, for repairs to windmill, in the sum of $9.60, was read.

It was moved that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Secretary be directed to draft, and have 100 copies printed, of an outline of the necessary steps to be taken by plumbers to become licensed plumbers of the Joint Meeting, and the course of procedure in the matter of connecting with the Joint Sewer. Motion was duly seconded, and on vote being taken was carried.

It was moved that the Engineer be instructed to prepare a report with the necessary cuts giving account of the work on the Joint Sewer and the method of construction, same to be printed in book form, after being approved by the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of five thousand dollars, which shall be assessed upon the several municipalities in the proportion fixed by the contract between the said municipalities in the following manner, to wit:

"On the First Division, West Branch, designated as AB, $5,000.

"And further, that the Secretary be directed to give notice to the various municipalities of said assessment and the amount to be paid by each; and further, that said moneys be paid within twenty days from the 10th day of March, 1904."

Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Wm. B. Adams	$ 128.50
Wm. Rollinson	129.78
Orange Journal Publishing Co.	5.20
S. Leschziner & Co.	54.16
Grover Bros.	12.50
S. M. Davy	4.00
James Farrell	135.00
Timothy Barrett	135.00
Chas. Campbell	101.50
Theo. W. Hall	17.50
John Spies	59.50
Costa Construction Co.	5,297.75
Alexander Potter	350.00
Anthony Nichols	31.00
James Burney	9.00
Chas. Rust	8.00

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of April 11, 1904.

On roll being called it was found that a majority of the municipalities were represented.

Mr. Jones moved that the reading of the minutes of the previous meeting be dispensed with and that the minutes be approved as printed. Motion was duly seconded and carried.

The following communication was read:

"Newark, N. J., April 11, 1904.

"Francis Speir, Jr.,

"Chairman of Executive Committee.

"Dear Sir: Have satisfied myself that the method of licensing plumbers and granting permits to tap the joint sewer is unnecessarily cumbersome and involved. Do you not think it would be better to issue permit direct to the municipality in which the tap is made, making the municipality responsible for the work done in connection with the tapping? In other words, issue a license or permit direct to the municipality and naming an inspector or not as may be thought desirable.

"I think that the taking of bonds by the Joint Meeting and the determination of the value of the sureties offered and all the rest of the detail might just as well be obviated in the manner suggested.

"Yours truly,

"Adrian Riker."

Recommendation of the Executive Committee was read as follows:

"Recommended, That the communication of Mr. Riker be received, and that his recommendation to simplify the present method of licensing plumbers be concurred in, and further, that Counsel be directed to amend the rules relating to tapping the joint sewer to comply with said recommendation."

Mr. Spier moved that the recommendation of the Executive Committee be concurred in. Motion was duly seconded, and on vote being taken was carried.

The following communication was read:

"Vailsburg, April 1, 1904.

To the Joint Sewer Committee:

"Gentlemen: At a meeting of the Mayor and Council of the Borough of Vailsburg, held March 23, 1904, Councilman Eschenfelder was duly appointed a member of your committee.

"We are, gentlemen,

"Wm. Billington, Borough Clerk.
"Thomas Connelley, Mayor."

On motion the communication was received and placed on file.

Communication from Geo. M. Titus, representing William M. Sandford, of Irvington, was read, stating that his client had a claim against Earle & Dougherty, in the sum of $205, for damages caused by negligence on the part of the contractors during the construction of the sewer on Orange Road, and asking that said moneys be retained until a settlement could be reached.

Mr. Speir moved that the communication be referred to Counsel and that the Engineer be instructed to investigate the facts of the case and report to the Joint Meeting. Motion was duly seconded and carried.

Communication from A. P. Morris, Clerk of Union Township Committee, was read, stating that an underdrain was discharging water in Burnett Avenue, and asked that steps be taken to put a stop to it.

On motion the communication was referred to the Engineer.

Communication from W. C. Whittingham was read, stating that the temporary dam which had been erected on his property had changed the course of the brook, and which, if allowed to continue, would seriously affect his boundary line. Mr. Whittingham further stated that he would require the board to replace the brook, etc., in the same condition as it was formerly.

Mr. Jones moved that the communication be received and placed on file. Motion was duly seconded and carried.

Mr. Woodruff read communication from Griggs & Hardington, in the matter of claim of Mrs. Watson for damages to property on Bayway.

On motion communication was received and referred to Claim Committee.

Communication of A. M. Pratt, of the North Jersey Railway Co., stating that they had filled in over the sewer on South Orange Avenue, which had cost the company $15.25, and asked that they be reimbursed for same.

On motion communication was referred to the Engineer, to make a report at the next meeting.

The regular monthly report of the Engineer was read:

"April 11, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"Anticipating that the April meeting would not take place until a week later, I have in course of preparation considerable material for presentation to you in connection with the progress and description of the work.

"As will be seen from the estimate, the tunnel is nearly completed, and at present there still remains to be done but twenty-seven feet of the sewer in the tunnel and twenty feet of open cut immediately west of the tunnel. This gap should be closed during the present week, after which the sewer will be completed from the outlet to the terminal of all the branch sewers. The sewer can then be put in use by all the municipalities, although the contractors on the various sections will not have completely performed their work, as there will still remain considerable work to be done in cleaning up the surface of the ground, and doing certain other work, but which will not interfere with the use and enjoyment of the sewers. All of which work, however, the three per cent. retained for one year will be ample to cover. The sewer will be completed so that this meeting can be adjourned until Thursday, April 21.

"I beg to report upon the condition of the Faitoute property, concerning which a claim was presented for damage caused by the sewer. I have examined the place in question and find as follows:

"The sewer is built in the center of the public road from one end to the other of this property, and the grade of the road had to be raised about two feet. On the west, or upper side, the new road formed a dam, which held back the water and flooded the land of the complainant. To overcome this difficulty connection was made with an underdrain. At certain times there is such a large volume of water passing across this property at this point, due to the breaking out of an old dam, that the underdrain is not sufficient to at once remove the water as soon as it accumulates, but which would pass off immediately were it not for the raising of the road.

"On the east side the new roadway threw the water upon the Faitoute land which originally ran down the middle of the road, which was dished out before the improvement was commenced. The complainant had outlined improvements which, to carry out, would cost several hundred dollars, but which, in my judgment, were quite unnecessary. That he has received some damage by the construction of the sewer there is no question. He has agreed, however, to accept, in full payment for all damage, the sum of $75.00, nad would recommend the payment of this amount to him.

"I beg to report that in the construction of the Rahway River crossing it was necessary to dam off the river and throw the water into an old channel. While this temporary dam was in place the high water started a new channel, crossing the property of Mr. Walton C. Whittingham. It is necessary to restore the condition of the ground where this channel was gutted out, and as it is now possible to get on to the land with carts, I propose, with the consent of the Joint Meeting, to start on this work immediately. The probable expense of repairing the damage thus caused will be about $150.00.

"I have dispensed with the services of Inspector James Farrell on the tunnel, Inspector Barrett looking after the work there until its entire completion. Inspector Spies has been engaged upon a general inspection of the system and reporting upon its condition. Lately he has been working upon the completion of the Fifth Section. The services of Inspector Charles Campbell will be dispensed with in a day or two.

"I submit herewith estimate on the Third Section, for work done up to April 9, and also a bill for services on account of contract percentage.

"Respectfully submitted,

"Alexander Potter."

Mr. Speir moved that the report be received and placed on file. Motion was duly seconded and carried.

Mr. Speir stated that he had been advised by Mr. Phraner that it would not be necessary to levy an assessment as there was sufficient money in the treasury to meet the payment due on contract.

It was moved that when the meeting adjourned it would adjourn to meet at the call of the chair. Motion was duly seconded and carried.

Mr. Speir moved that the recommendation of the Engineer to pay Faitoute seventy-five dollars be concurred in and that said money be paid on Mr. Faitoute executing a proper release to the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the matter of repairing damages on W. C. Whittingham's property be referred to a committee composed of the members representing the municipalities which would have to bear the expense, and, further, that said committee be authorized to order such "filling in" as they thought necessary. Motion was duly seconded, and on vote being taken was carried.

Mr. Potter reported that, on investigation of the pipe across the land of the Elizabethtown Water Co., he had found that on testing four joints, that only twenty-eight pounds of lead were used, while the specifications called for forty-five. He further stated that the contractors had assured him that forty pounds of lead had been used on the balance of the work.

Mr. Baumann moved that the Engineer be directed to have the pipes properly caulked, in accordance with the specifications. Motion was duly seconded and carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Costa Construction Co.	$4,717.62
Wm. Rollinson	128.47
Alexander Potter	1,000.00
Orange Journal Publishing Co.	7.80
Grover Bros.	2.85
S. Leschziner & Co.	54.16
S. M. Davey	3.25
Timothy Barrett	145.00
James Farrell	145.00
Charles Campbell	101.50
Theo. W. Hall	38.50
John Spies	21.00
Anthony Nichols	8.00
Charles Rust	4.75
Wm. B. Adams	103.50

On motion the meeting adjourned.

WILLIAM ROLLINSON,
Secretary.

Joint Meeting of May 5, 1904.

On roll being called it was found that all of the municipalities were represented.

Mr. Jones moved that the minutes be approved as printed. Motion was duly seconded and carried.

Mr. Phraner, Treasurer of the Joint Meeting, presented the renewal of his bond for the ensuing year.

Mr. Speir moved that the renewal be accepted. Motion was duly seconded, and on vote being taken was carried.

Engineer read his monthly report:

"May 5, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"The tunnel is completely finished, including the manholes. This piece of work has been satisfactorily performed, and is a credit to those who have been connected with it. The use of compressed air has made possible a much tighter sewer than could have been secured by any other means.

"While the contractors were compelled for their own protection to thoroughly cement-wash the interior of the sewer in tunnel, still the fact remains that their doing so has given us a construction superior to that which we would have secured had any other method of construction been adopted. The contractor has requested an extra allowance for this finish to the tunnel section, for which under his contract I have no authority to allow him; but that the doing of this work has greatly enhanced the value of the work to the municipalities is without question and it is for the Joint Meeting alone to determine whether they will reimburse the contractor for his labor and materials used in applying this cement coating.

"The work of cleaning up of the surface of the ground is progressing favorably, and will be completed within a week.

"In accordance with instructions, I had all the joints in the iron pipe across the Elizabethtown Water Company's land removed, except those under which there was no waterway. The average amount of lead found in the joints was 28.6 pounds, as against 45 pounds called for in the specifications. Many of the joints weighed 22 and 23 pounds, while one joint alone contained the quantity of lead called for by the contract. I do not understand how this shortage occurred, for I interrogated the Inspector a number of times during the progress of the work, and he informed me that the requisite quantity of lead was being used.

"In order to expedite the work of re-running and re-caulking the joints of the cast iron pipe three gangs of workers have been put upon it, and have borrowed tools and appliances from Newark and Orange. Such satisfactory progress has been made during the last two days that we will have the work entirely finished by Saturday night. A temporary bulkhead has been placed in the sewer above the iron pipe to facilitate the making of the joints.

"The contractors on Section 5 have performed all the work required of them, and I would recommend the acceptance of their work. Concerning the condition of South Orange Avenue, I have advised Mr. Ougheltree, Chairman of the Road Board, that if South Orange Avenue is not restored to a condition satisfactory to him, he can proceed with the work himself after due notice,

and deduct the cost of the same from the moneys held by the Road Board as a guarantee that this work will be made satisfactory. I would recommend the payment of $1,000 due the contractors, less any claims properly presented and allowed by the Joint Meeting.

"I present herewith plans and profiles of all the sections as actually constructed, also final estimate on Section 3, amounting to $167,730.86. From this there will be deducted three per cent., to be retained for one year, amounting to $5,031.93. There has already been paid the contractor the sum of $154,508.85, leaving a net estimate of over and above the retained percentage of $8,190.08.

"I present bill on account of contract percentage amounting to $750.00.

"Respectfully submitted,

"ALEXANDER POTTER."

Mr. Speir moved that the report be received and placed on file. Motion was duly seconded and carried.

Question of accepting the Fifth Section, as recommended by Engineer, taken up.

Mr. Riker stated that under the circumstances he would advise that the section be not accepted until the work of filling in roads, etc., was entirely completed.

After further discussion Mr. Speir moved that Section 5 be not accepted by the Joint Meeting until the Engineer has reported that the work is entirely completed, and the members of the Joint Meeting have satisfied themselves that the contract and specifications have been lived up to by the contractors. Motion was duly seconded, and on vote being taken was carried.

Mr. Bassett, on receiving permission, asked that the Costa Construction Company be paid five thousand dollars on account of final estimate.

Mr. Potter, on being asked, stated that the current estimate would amount to about $2,000.00; that he had not made a separate statement, but had embodied it in the final estimate. Mr. Potter further stated that if Mr. Bassett's request were granted it would leave a balance of about $3,100 in the hands of the Joint Meeting, and that inasmuch as one thousand dollars would more than cover what work remained to be done on the Third Section, he would advise that the Joint Meeting would be safe in making the payment of $5,000.

After further discussion, Mr. Hopkins of Millburn moved that the Costa Construction Company be paid five thousand dollars on account of contract. Motion was duly seconded, and on vote being taken was carried.

Mr. Bassett stated in regard to the joints in iron pipe across the Elizabethtown Water Company's land that the requisite amount of lead had been shipped on the ground and "been checked up" by two men, and that if, as reported by Mr. Potter, the lead was not in the joints, it must have been stolen.

Claim of Costa Construction Company, for extra compensation in the matter of "cement washing" the tunnel, was taken up.

After discussion the matter was laid on the table.

Mr. Speir moved that the Engineer be authorized to purchase twenty-five manhole covers with locks, to place in dangerous places. Motion was duly seconded, and on vote being taken was carried.

Communication from Roselle Park was read, asking that the capacity of the Borough be increased to 1,000,000 gallons.

Mr. Speir moved that the communication be referred to the Engineer to take up with Mr. Riker and report on same at the next meeting. Motion was duly seconded and carried.

Counsel reported that he had seen Patrick Larney and that he was willing to accept the $155 previously voted him for damages.

Mr. Speir moved that the Secretary be authorized to pay Patrick Larney the one hundred and fifty-five dollars on his executing a proper release to be drawn by Counsel. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Secretary be authorized to rent the room now occupied by the Joint Meeting, from Mr. Woodruff, at seventeen dollars a month. Motion was duly seconded and carried.

Mr. Jones states that owing to the change in the plans of the Sixth Section that there were approximately 1,500 feet of sewer in which Summit had no capacity, and suggested that the Engineer prepare a statement of the cost of this Section so that the matter could be adjusted.

On motion the Engineer was directed to prepare statement of cost of the Sixth Section.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

Charles Campbell	$ 91.00
S. M. Davey	3.00
James Farrell	50.00
Timothy Barrett	145.00
John Spies	91.00
Orange Journal	6.50
Joseph O'Connor	2.50
Wm. B. Adams	125.00
Wm. Rollinson	125.00
New York & New Jersey Telephone Co.	28.70
Alexander Potter	750.00

Mr. Speir moved the adoption of the following resolution:

"Resolved, That the several municipalities represented in the Joint Meeting do raise and pay to the Treasurer of the Joint Meeting the sum of ten thousand dollars, which shall be assessed upon the several municipalities in accordance with the terms of the contract between said municipalities in the following manner, to wit:

"On the First Division, West Branch, designated as AB, $10,000.

"And, Resolved further, That the Secretary be directed to give notice to the various municipalities of said assessment and the amounts to be paid by each; and, further, that said moneys be paid to the Treasurer of the Joint Meeting within twenty days from the fifth of May, 1904."

Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that when the meeting adjourned it would adjourn to meet at the call of the chair. Motion was duly seconded and carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of June 3, 1904.

On roll being called it was found that all of the municipalities were represented.

On motion the reading of the minutes of the previous meeting was dispensed with.

Mr. Speir, Chairman of the Executive Committee, reported that the committee had made a tour of inspection of the Joint Trunk Sewer on June 1st.

He stated that they had examined the First, Third, Fifth and Sixth Sections as carefully as possible, and that the sewer was satisfactory in every way.

On motion the report was received.

The Engineer read his monthly report and statement of apportionment:

"June 3, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I present herewith final estimates on Sections 3 and 5. Since these were prepared there has been some work done at the Rahway River Crossing by force account, and separate bills are presented for the work done, amounting to $126.00. There was also extra work on the Second Section amounting to $25.00, for which a separate bill is presented.

"I find that it will be necessary to build two additional weir manholes on the Fifth Section. These can be contracted for at about $135.00 each, or can be built by days' labor under your Engineer's supervision for a less amount.

"There is an increase of $38.90 in the gross amount of the estimate for the Fifth Section, due to the omission of a manhole built but not included in the partial final estimates.

"I would recommend the acceptance of Section 3 of the Joint Trunk Sewer.

"I would recommend the employment of George Smith as caretaker of the Rahway River Crossing, to keep it free from driftwood, at a salary of $20.00 per year.

"I would recommend the payment of a bill of $38.50 presented herewith for labor and material in repairing work on the First Section, which amount should be charged against the three per cent. retained from Contractor Shea.

"I would recommend that an agreement be made with the Costa Construction Company to the effect that the acceptance of

the work on Section 3 does not throw the responsibility upon the Joint Meeting for restoring the ditches on private rights of way to their original condition.

"Yours respectfully,

"Alexander Potter."

"I would recommend the acceptance of the Fifth Section. I have received letters from Wallace Ougheltree, Chairman of Essex County Road Board, stating that the highways over which the sewer runs, namely, South Orange Avenue and Springfield Avenue, have been restored to a condition satisfactory to him. I would recommend the payment of $1,037.73, the balance due Earle & Dougherty, contractors, on this Section.

"Alexander Potter."

"June 3, 1904.

"Joint Meeting,
"Newark, N. J.

"Gentlemen:—

"I beg to report upon the adjustment of payments in the cost of a portion of Section 6, due to change in the alignment of the sewer on the upper end of Section 3 and the lower end of Section 6.

"When the contract was drawn between the various municipalities the lower terminus of the Summit-Millburn Division was at the point 'D' shown on the plan accompanying this report, and followed the dotted line from the point 'E'.

"The only right of way which could be procured without litigation across the property of W. C. Whittingham was that shown in full lines. It was a physical impossibility to construct a sewer over the right of way to deliver the sewerage of Millburn and Summit at the point 'D', except at a prohibitive cost. A rearrangement of Section 3 transferred the point of junction of the South Orange and West Orange line and the Summit-Millburn line to the point 'F'. This change was for the benefit of Summit and Millburn and not for the benefit of South Orange and West Orange. The line 'DE' was estimated to cost $14,000, the line 'EF' cost $7,000, and the line 'FD' cost $15,000. To have the line 'DF' charged to South Orange and West Orange means to add $15,000 to the expense of their outlet due to the fact that Millburn and Summit were unable to secure a proper right of way for the sewer they alone were interested in.

"On the other hand, the change of the junction point has enabled Summit and Millburn to reach Section 3 at $7,000 less expense that under the original plan. If, therefore, Millburn and Summit should pay the amount thus saved towards the cost of 'DF', it will leave $8,000 for adjustment between the municipalities. Millburn, however, uses the line 'DF' for the discharge of the

sewage of one-third of its territory. The value of this use is a sum bearing the same relation to the cost of the portion of the line 'DF' which Summit and Millburn should pay outright, as the use they make of it bears to the total capacity, or about seven per cent. of the cost, which would amount to $490.00.

"Of the balance, namely, $8,000.00, if the apportionment is made of the basis of the contract percentage, then the interested municipalities will pay as follows:

Summit, 32.43 per cent., or	$ 2,594.40	
South Orange, 23.71 per cent., or	1,896.80	
Millburn, 16.79 per cent., or	1,343.20	
West Orange, 27.07 per cent., or	2,165.60	
		$ 8,000.00

"Of the present cost of the line 'DFE':

Summit pays	$13,802.80	
Millburn, 16.79 per cent., or	7,343.20	
West Orange pays	1,053.80	
		$22,000.00

"If an adjustment is made on the line referred to then the payments to be made by the various municipalities will be as follows:

Summit		$4,391.80	
"		3,901.80	
"		2,594.40	
			$10,888.00
Millburn		$2,272.90	
"		2,762.90	
"		1,343.20	
			6,379.00
South Orange			1,896.80
West Orange		$ 335.30	
" "		2,165.60	
" "		335.30	
			2,836.20
			$22,000.00

"Respectfully submitted,

"ALEXANDER POTTER."

It was moved that report and statement be received and placed on file. Motion was duly seconded and carried.

Engineer's report taken up in detail.

Mr. Speir moved that the bill of the Costa Construction Company, in the sum of $126.00, for force account, be paid as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Jones moved that the Engineer supervise the construction of two weir manholes on the Fifth Section at a cost not to exceed $135 per weir manhole. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Earle & Dougherty be paid $38.90 for the manhole not included in the "partial" final estimate. Motion was duly seconded, and on vote being taken was carried.

It was moved that George Smith be employed as caretaker of the Rahway River crossing at a salary of twenty dollars per annum. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that bill of John Spies, in the sum of $38.29 for labor employed on First Section, be paid and charged against the three per cent. retained from T. J. Shea's final payment. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved the adoption of the following resolution:

"Whereas, The Engineer has reported that the work on the Third Section of the sewer has been completed with the exception of the restoration of the surface of the land in the private rights of way, and has recommended the acceptance of the work with the exception above stated;

"Resolved, That the Third Section of the sewer is hereby accepted and payment therefor in accordance with the contract for the balance due thereon as reported by the Engineer is hereby authorized, provided the contractor in accepting said payment agrees to complete the work of restoring the surface of the rights of way in accordance with the contracts containing the grants thereof and to the satisfaction of the Engineer, and that the retained percentage shall stand as security for such work to the same extent as if said work constituted repairs under the contract.

"And further, that the claim of the contractor for extra compensation for work on the tunnel section is reserved."

Motion was duly seconded, and on vote being taken was carried.

The following communication was submitted:

"Newton, N. J., May 28, 1904.

"C. P. Bassett, Esq.,

"Dear Sir: In reply to the inquiry about the filling along the sewer upon my property at Millburn, I beg to say that upon the

section that you have there need be nothing done. As far as I am concerned it is perfectly satisfactory.

"Very truly yours,

W. C. WHITTINGHAM."

Mr. Frey moved that the communication be received and placed on file as a matter of record. Motion was duly seconded and carried.

Mr. Bassett, representing the Costa Construction Company, read a report on the construction of the Third Section, and asked that they be allowed $1,868.95 in payment for extra work, etc., in settlement of all claims against the Joint Meeting.

Mr. Jones moved that the matter be referred to the Executive Committee and that the Costa Construction Company be invited to submit any further claims they might have. Motion was duly seconded and carried.

Mr. Jones moved that the statement of the Engineer, in regard to the readjustment of the cost of construction of the Sixth Section, be referred to the Executive Committee, together with a further report, to be prepared by the Engineer, on the upper part of the Sixth Section. Motion was duly seconded and carried.

Mr. Speir moved that the bill of the Harrison Construction Company, in the sum of $25, be paid as recommended by the Engineer. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Fifth Section of the Joint Trunk Sewer be accepted, and that Earle & Dougherty be paid the moneys still due on account of final payment, to wit: The sum of $1,037.73, in accordance with the terms of the contract. Motion was duly seconded, and on vote being taken was carried.

Mr. Eschenfelder moved that when the meeting adjourned it would adjourn to meet on Thursday, June 16, 1904, at 8 p. m., in the office of Mr. Riker, in the Lawyers' Building, and further, that the Secretary be directed to notify the various municipalities that the election of officers for permanent organization of the Joint Meeting would be taken up at that meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker reported that Mr. Larney was desirous of making a ten-year contract with the Joint Meeting to keep the crossing of the sewer pipe, over the brook on his property, clear of driftwood

for the sum of $10 a year. He further stated that Mr. Larney asked permission to remove the abandoned underdrain on his property.

Mr. Baumann moved that a contract be entered into with Patrick Larney as outlined by Counsel, and that Mr. Larney be allowed to remove the abandoned underdrain. Motion was duly seconded, and on vote being taken was carried.

Final estimate of the Costa Construction Company, in the sum of $3,190.08, was read.

It was moved that money be paid as per estimate. Motion was duly seconded, and on vote being taken was carried.

The following bills were read, approved and, on motion, ordered paid, all voting aye:

S. M. Davy	$ 2.97
Grover Brothers	19.40
Orange Journal Publishing Company	12.70
Wm. Rollinson	125.32
Wm. B. Adams	103.75
David Cody	4.00
Reinhard's Express	4.00
N. Y. & N. J. Telephone Co.	3.90
Timothy Barrett	102.50
Chas. Campbell	24.50
John Spies	91.00
John Spies	49.94

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

Joint Meeting of June 16, 1904.

On roll being called it was found that all of the municipalities were represented.

On motion, the minutes of the previous meeting were approved as printed.

The report of the Executive Committee was read and taken up in detail.

Report of Executive Committee.

"The Executive Committee respectfully reports as follows:

"First—As to adjustment of the cost between Summit, Millburn, West Orange and South Orange of a portion of Section 6, referred to them at the last meeting.

"A blueprint of this portion was made and filed, and is exhibited herewith, marked D, the junction of Sections 3, 4 and 6 on Millburn Avenue, as set forth in the contract, and also, marked E, the present junction as changed and as constructed.

"The line as originally planned had to be given up, owing to the opposition of Mr. Whittingham and of the Elizabethtown Water Company.

"We have carefully gone into the equities of the question and are of the opinion that the claim of Summit and Millburn for relief is proper. As the matter now stands the City of Summit does not use the portion of the Section from the end of the Fourth Section to the junction of the Third and Sixth Sections. The contract provided that they shall have a definite portion of space in the sewers, for which they pay. The City of Summit can with reason make a claim for the excess space over and above that actually used by West Orange and South Orange, although West Orange and South Orange are using that portion for which they have paid nothing. Millburn uses and has contributed toward the building of this portion above described. The City of Summit may claim that if West Orange or South Orange attempt to dispose of a portion of their excess capacity in the sewer to the Town of Montclair or the City of Orange, Summit's claims should be first considered. In any event, the matter should be settled at once. In view of the conditions brought about by obstacles that we had no power to obviate, it is our opinion that an adjustment should be made on fair and equitable lines; that Summit should not be charged with the whole cost of the line described, but a fair proportion should be borne by South Orange and West Orange on receiving from Summit a release for any claims for capacity in the line described.

"We have gone carefully over the figures made by the Engineer, and believe that they are fair. The cost as calculated by

the Engineer inclusive of rights of way of this portion amounts to $22,000. Of this Summit should pay $10,888; Millburn should pay $6,379, and the Village of South Orange $1,896.80, and the Town of West Orange $2,836.20. It may be necessary to arrange for this in a supplemental contract, or by resolution, and if the Joint Body takes action, Counsel will advise as to procedure.

"Second—As to the proposed adjustment suggested by Millburn.

"The sewer ends practically where it was originally planned and as described in the contract. When it seemed probable that Morristown would enter into contractual relations with the Joint Body as to the use of the Sixth, Third, Second and First Sections of the Joint Trunk Sewer, the plan was modified and instead of turning to the west on the road to Summit, it was proposed to continue on the Morristown road. After Morristown declined to enter into the agreement, approximately the original arrangement was carried out. For this reason we are of the opinion that the route now existing is to all intents and purposes practically the same as that described in the contract, and Millburn is not entitled to relief.

"Third—As to the claim of the Costa Construction Company.

"The communication of the Costa Construction Company is dated June 3, 1904, and was referred to us for consideration. The committee are unanimous in recommending that the Joint Meeting disallow the claim. When the contract with the Costa Construction Company was modified, the price to be paid was raised from $10.50 a running foot to $17, and this included all extras of whatsoever kind, nature and description in connection with the tunnel. This was very definitely stated and embodied in the contract. We recognize that Mr. Bassett had a hard contract, and that the tunnel he has furnished us is exceptionally well-built and is almost absolutely watertight, the leakage being only about one-half of one per cent. Notwithstanding this, we do not believe that we are justified in giving an extra allowance for what we believe is covered by his contract.

"Fourth—As to the Whittingham claim. Your committee have gone into detail on the claim of Mr. Whittingham for the damage done by damming the Rahway River, causing it to break through into the new watercourse last fall, and are of the opinion that the matter can best be settled directly between the Board and Mr. Whittingham. Dr. Campbell is thoroughly conversant with the ground and the conditions, and we would recommend that he be empowered to adjust the claim with Mr. Whittingham.

"We understand that Mr. Whittingham wants a bulkhead built, which should be done at a small expense; but if the bulkhead is put in, the owner of the land opposite claims that it would wash away his land and he may have to be paid something. In our opinion, it would be advisable to have a clear adjustment

with Mr. Whittingham and obtain a release. The expense should not amount to more than about one hundred and fifty dollars, if as much.

"Fifth—We have read the report of the Special Committee on Organization, and approve thereof, and recommend that it be concurred in.

"The Joint Trunk Sewer has been constructed; the life of the Joint Body ceases to-night, and the new body for maintenance takes its place. We trust that the labors of the new body will be marked by the same unanimity of action that has been shown in the Joint Body.

"Respectfully submitted,

"Francis Speir, Jr.,
"C. V. Baumann,
"J. J. Kenney,
"A. Eschenfelder,
"Warren D. Frey,
"Wellington Campbell,
"Chester N. Jones.

"Dated June 16, 1904."

Mr. Speir moved that the recommendation of the Executive Committee in the matter of the Whittingham controversy be concurred in, and that Dr. Campbell be directed to adjust the matter with Mr. Whittingham. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that report of the Executive Committee be received and recommendations concurred in, with the exception of the fifth clause, relating to the report of the special committee on reorganization. Motion was duly seconded, and on vote being taken was carried.

Mr. Bassett, representing the Costa Construction Company, read a statement setting forth claims for extra compensation other than that called for under the contract, amounting all together to the sum of $6,207.07.

Mr. Jones moved that the Costa Construction Company be paid at the rate of seventy-five cents per lineal foot for excavation in settlement of claim. Motion was duly seconded and carried.

Mr. Speir moved that the salaries of the officers of the Joint Meeting and members of the Executive Committee be paid up to date. Motion was duly seconded, and on vote being taken was carried.

It was moved that John Spies be paid the sum of six dollars for labor, and that same be charged against Earle & Dougherty and deducted from the moneys retained under the contract. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Patrick Larney be paid the sum of ten dollars on account of his contract to keep the brook clear of debris at the junction of the sewer and the Rahway River. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the reapportionment of the Sixth Section, as outlined in the report of the Executive Committee, be approved. Motion was duly seconded and carried.

Counsel advised that the proper procedure in the matter was to have the four municipalities, which were more particularly concerned in the reapportionment, take the matter up before their respective municipal boards and authorize the modification of the joint contract to conform with the proposed reapportionment of the Sixth Section.

Mr. Jones moved that the Secretary be directed to forward a copy of the report of the Executive Committee, so far as it relates to the reapportionment of the Sixth Section, to each of the municipalities concerned in the reapportionment, together with a report of the Engineer on the subject in question. Motion was duly seconded and carried.

Claim of Costa Construction Company taken up.

Counsel, on being called on, stated that it was an open question as to how the Court would construe the wording of the contract relating to the depth of the sewer. That in his opinion the Court would be governed largely by expert testimony on what was customary in the matter.

After further discussion, Mr. Speir moved that the Joint Meeting compromise and settle the claim of the Costa Construction Company for the sum of $1,466.97, instead of $6,207.07 as claimed by the Costa Construction Company, said settlement to be in lieu of all claims against the Joint Meeting. Motion was duly seconded, and on vote being taken was carried.

Mr. Riker submitted his bill in the sum of $2,000, for retainer and legal services up to date.

It was moved that the bill be paid. Motion was duly seconded, and on vote being taken was carried.

The report of the Special Committee on Reorganization was read.

REPORT OF SPECIAL COMMITTEE.

"The undersigned, a special committee appointed by the Joint Body, to consider, formulate and report a plan for the reorganization by the jointly contracting municipalities, for the purpose of maintaining and operating the joint outlet or trunk sewer when completed, respectfully report as follows:

"The statute governing proposed action is as follows:

" 'Upon the completion of such public improvement, the joint meeting of the governing bodies or board of the municipalities, jointly contracting therefor, shall reorganize for the purpose of maintaining and operating a joint outlet or trunk sewer so completed by them, by the election of a Chairman of such Joint Meeting, and a Secretary and Treasurer, and such other officers, servants and agents as may be needed for the purpose of the maintenance and operation of such joint outlet or trunk sewer, and shall fix the compensation to be paid all said officers, servants and agents for the services to be performed by them in the future operation and maintenance of said sewer.' (Laws of 1903, Chapter 19, Section 1.)

"It thus appears that on the reorganization outlined by the statute, a Chairman of the Joint Meeting and a Secretary and Treasurer must be elected. Under the contracts entered into with the several contractors in the construction of the several sections of the sewer, provisions are made for holding back a portion of the payment as a guarantee that the work has been properly constructed, to bear the test of time. It will therefore be necessary to appoint an Engineer to take charge of the Joint Sewer and to see to it that the accepted work is as guaranteed. In addition to such duties, the Engineer will have to test the efficiency of the weir measurements and tabulate the amounts used by the various municipalities to be charged with the amount of their quota of capacity therein. If a break or stoppage should occur, the Engineer must be ready to take prompt steps to remedy the defects and prevent the system from becoming ineffective.

"In our opinion, it is necessary to appoint a Counsel to advise the reorganized body upon legal questions that will constantly arise. Such advice is vital, to prevent mistakes being made.

"In addition to the officers, there is need of an administrative head to be appointed with some such title as Superintendent or Chief Inspector. His duties will be, under the supervision of the Engineer, to carry out the instructions of the joint body, to inspect conditions and look out for constructions, and to report to the Engineer and to the Joint Body. In addition to these duties he must also have charge of the construction and inspection of con-

nections with the joint trunk sewer where made outside of the territory of the jointly contracting municipalities. The connections are municipal, curb and house, along the line of the sewer from the Township of Millburn to the outlet. He will also have to see that no prohibited substance is deposited in the sewer, either by any of the Joint Bodies or those under contractual relations with the Joint Body, or the jointly contracting municipalities.

After reorganization it may possibly be necessary to appoint an additional inspector or assistant inspector to perform such duties as the reorganized Joint Body may designate.

"If the Joint Body is provided with such officers and agents, it will be able to define the work and the routine to be attended to without causing unnecessary calls for the consideration of detail to be made upon the time of the Joint Body. Rules can be passed defining the work to be attended to by the official and clerical force to whom such work can be delegated.

"Nearly at the outset of the construction of the Joint Trunk Sewer it was found that the Joint Body was unwieldy and capable of but slow progress, so that the necessity for an executive committee became apparent. The functions of the executive committee appointed were to consider the mass of detail, to sift it, report thereon, and to recommend action to the Joint Body, which alone had power to act.

"Owing to the novelty of the joint undertaking, precedents were lacking. The executive committee had to master and pass upon a mass of detail, varying in character from the value of three and one-half miles of right of way through Bayway, in the City of Elizabeth, to the damage done to an apple tree. Private rights of way for about one hundred separate plots owned by individuals, after a careful and seemingly endless consideration of values, were purchased. In many instances, after the personal investigation and negotiations by many members of the Joint Body, long and tedious negotiations for rights of way through municipalities had to be undertaken and carried to a conclusion. The executive committee was subdivided into two committees, one on municipal rights of way, and the other on private rights of way. These now are functi officii. With the sewer nearly completed the labors of the executive committee have been greatly lightened. When the sewer is fully completed and the Joint Body reorganized, the necessity of the existence of an executive committee having a salary will be obviated. In our opinion, the executive committee should be continued and the members thereof should be paid a fee for attendance at each meeting, as the payment of a fee for attendance tends to insure a quorum.

"We have consulted with Mr. Potter and requested him to give us his views as to the duties of the Engineer, Superintendent and method of inspection. His communication is annexed hereto.

"We have consulted Mr. Riker as to the legal situation, and we understand from him that he is not at present ready to advise our seeking further legislation. Later, if in his opinion further legislation is necessary, he will advise us to that effect.

"We recommend that regular, stated quarterly meetings of the Joint Body be held and that special meetings be called by the permanent Chairman or Secretary, at the request of one or more municipalities, or of any member of the executive committee.

"We recommend that in emergencies needing immediate attention, where in the opinion of the Engineer danger threatens the sewer or its efficiency, the Engineer be authorized and empowered to order work, labor and services to be performed, and materials furnished, without waiting for a meeting of the Joint Body to be called. We recommend that such resolution be passed by the Joint Body and that the Engineer be required, in the event of such emergency, to report at once both to the permanent Chairman and to the Secretary. We recommend that such resolution further provide that the Secretary, on receiving such notice from the Engineer, report its purport at once to each of the Joint Municipalities.

"We are of the opinion that the superintendent or chief inspector should, if possible, be a plumber or other skilled workman, and should be a man of intelligence, skilful and sober, in whom the Joint Body can have confidence.

"We recommend that salaries be paid as follows: To the President, no salary, but that he be allowed the same fee for attendance at the meetings as is paid to members of the executive committee; to the Treasurer, the sum of $200 per annum; to the Secretary, the sum of $300 per annum; to the Counsel, a retainer of $250 per annum, and payment for special services where rendered; to the Engineer not to exceed the sum of $2,000 per annum; to the superintendent or inspector not to exceed $80 to $100 a month; to members of the executive committee, for attendance at each meeting, the sum of $5.

"Respectfully submitted,

"Francis Speir, Jr.,
"C. V. Baumann,
"W. L. Glorieux."

"December 16, 1903.

"Francis Speir, Jr., Esq., Chairman of Committee on Permanent Organization, New York City.

"Dear Sir: At your request I take pleasure in submitting an outline of the respective duties of the Engineer and Inspector for the permanent organization of the Joint Governing Board.

"While we have had no precedent to guide us in the organization and operation of the Joint Meeting during the construction of the sewer, and the preliminaries connected therewith, the main-

tenance or other joint projects have been well worked up and the duties of the administrative officers of the permanent organization, including Engineer and Inspector, can be well defined from experience.

"The Engineer shall be responsible:

"First. The examination of the sewers after severe rainstorms to determine the quantity and location of leaks, which the contractors are, by their contracts, bound to repair for a year after acceptance.

"Second. The direction and supervision of all work required to be done under the retention clauses on all sections of the sewers.

"Third. To take charge of the immediate remedying of stoppages and breaks in the joint sewer, and on any of its branches, and to employ men and secure the material necessary therefor, and report the same to the Joint Meeting.

"Fourth. The general examination of the sewers and its branches from time to time and report upon the condition of same to the Governing Board, with recommendations, and also for the periodic inspection of the discharge of sewage in the local systems.

"Fifth. The general direction of the work of the Inspector and his helpers and laborers, as to the when, where and how of cleaning and repairing.

"Sixth. The examination of sundry complaints from various persons and municipalities through whose land or streets the joint sewer passes, and for the giving of proper directions as to the rectification of same and report to the Governing Board.

"Seventh. The determination of the efficiency of filtering and straining apparatus through which the sewage passes from mills, shops, factories and other places contributing liquids other than house sewage, and which might be detrimental to the Joint Sewer.

"Eighth. The correct observation of, reading of, and regulation of the automatic gauges registering the depth of flow in the various tributary sewers, and in the main sewers.

"Ninth. The determination of velocity factors in each sewer as constructed at the various depths of flow, as a check upon deductions calculated from gauge readings. The financial interest involved in the correct determination of the flow in the sewers makes it imperative that all possible checks to secure accurate results should be made.

"Tenth. Calculations of the quantity of sewage as determined by the reading of the gauges with collateral data.

"The duties of the Inspector shall be:

"First. The examination of connections which will be made to the joint sewer and its various branches.

"Second. A systematic inspection and patrol of the entire length of the sewer at least once a month, and reporting the condition thereof to the Engineer. This work will occupy ten days of each month.

"Third. The supervision of laborers required from time to time in the work of cleaning the sewers, under the general directions of the Governing Board and Engineer.

"Fourth. An inspection of the connections from premises from which prohibitive or regulated matters might enter the sewer.

"Much of the work enumerated above is of a strictly scientific and technical nature, but work which is absolutely necessary for the proper adjustment of present and future assessments between the joint municipalities, and for the proper regulation and efficiency of the system.

"While legal matters always demand the most efficient counsel the engineering and inspection work are equally essential.

"The salary of the engineer should not be less than $3,000.00, on account of the character and extent of his duties, involving as it will, not only his own services, but the employment by him of an assistant engineer a part of the time.

"The successful maintenance of the sewer will depend upon the manner in which it is handled, and the care which is given to the details.

"The faithful and efficient services of an inspector who can be depended upon to do honestly and intelligently what he is told to do, will also have much to do with the success of the sewer.

"Too much stress cannot be placed upon the importance of the services wihch we are discussing. I would strongly urge the appointment of a man as inspector who will be willing and anxious to carefully carry out the instructions of the Governing Board and the Engineer, and to co-operate with them even to the smallest detail in a determination to secure the successful operation of the system.

"Respectfully submitted,

"ALEXANDER POTTER."

On motion the report was approved.

Mr. Speir moved that the recommendation of the Committee, "that the Permanent Chairman receive no salary, but be allowed the same fee for attendance at the meetings as is paid to members of the Executive Committee," be concurred in. Motion was duly seconded, and on vote being taken was carried.

It was moved that the Treasurer receive the sum of $200 per per annum. Motion was duly seconded, and on vote being taken was carried.

It was moved that the Secretary receive the sum of $300 per annum. Motion was duly seconded, and on vote being taken was carried.

Mr. Kenney moved that Counsel receive a retainer of $250

per annum, and be paid for special services when rendered. Motion was duly seconded, and on vote being taken was carried.

It was moved that the Engineer receive a salary of $2,000 per annum. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the Chief Inspector be paid $100 a month. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that the members of the Executive Committee receive for attendance at each meeting of the Joint Body the sum of five dollars. Motion was duly seconded, and on vote being taken was carried.

It was moved that all the officers of the Joint Meeting shall hold office for one year, provided, however, that the Permanent Chairman and members of the Executive Committee shall cease to hold office in the Joint Meeting on their ceasing to hold office on their respective municipal boards, and further, that the Chief Inspector shall hold office only by the month. Motion was duly seconded, and on vote being taken was carried.

Mr. Speir moved that Mr. Adams be appointed for two weeks, at $25 per week, to close the books. Motion was duly seconded and carried.

Mr. Speir moved that a competent qualified public accountant be employed to audit Mr. Phraner's books, such person to be selected by, and the work to be done under, the direction of an Auditing Committee, to be appointed by the Permanent Chairman. Motion was duly seconded, and on vote being taken was carried.

It was moved that whereas the sewer has been completed and accepted that we proceed to the election of officers. Motion was duly seconded and carried.

Mr. Kenney nominated Mr. Francis Speir, Jr., for the position of Permanent Chairman. The nomination was duly seconded. On motion duly seconded, the nominations were closed.

On vote being taken it was found that Mr. Speir was unanimously elected.

Mr. Speir then took the chair and called for nominations for the office of Treasurer.

Mr. Jones nominated William Rollinson. The nomination was duly seconded. On motion duly seconded, the nominations were closed.

On vote being taken, it was found that Mr. Rollinson was unanimously elected.

The Chairman then called for nominations for the office of Secretary.

Mr. Eschenfelder nominated Mr. J. R. Woodruff. The nomination was duly seconded.

Mr. Jones nominated Mr. Edward D. Tuttle. The nomination was duly seconded.

On motion duly seconded, the nominations were closed.

Chair appointed Messrs. Kenney and Jones to act as tellers.

On ballot being cast, the vote was announced as follows:

Mr. Edward D. Tuttle, four votes.

Mr. J. R. Woodruff, three votes.

Mr. Tuttle having obtained a majority of the votes, was declared duly elected Secretary.

Chair called for nominations for Counsel.

Mr. Kenney nominated Mr. Adrian Riker. The nomination was duly seconded. On motion the nominations were closed.

On vote being taken Mr. Riker was unanimously elected as Counsel of the Joint Meeting.

Chair called for nominations for Engineer.

Mr. Kenney nominated Mr. Alexander Potter. Nomination was duly seconded. On motion being seconded, nominations were closed.

On vote being taken, the result was announced as follows:

Newark—Alexander Potter.

Irvington—Alexander Potter.

South Orange—No vote.

West Orange—Alexander Potter.

Millburn——Alexander Potter.

Summit—Alexander Potter.

Vailsburg—Alexander Potter.

Mr. Potter having received a majority of the votes, was declared elected.

Chair called for nominations for Chief Inspector.

Mr. Baumann nominated Mr. Ross Sandford. Nomination was duly seconded.

Mr. Sharp nominated Mr. George Hayward. Nomination was duly seconded.

On motion nominations were closed.

A ballot was then taken, Messrs. Kenney and Jones acting as tellers.

On vote being counted, the result was announced as follows:

Mr. Ross Sandford, four votes.

Mr. Geo. Hayward, three votes.

Mr. Sandford having obtained a majority of the votes, was declared elected Chief Inspector.

Mr. Jones moved that the Treasurer's bond be fixed at $5,000. Motion was duly seconded and carried.

It was moved that Mr. Phraner, the retiring Treasurer, be directed to pay over to Mr. Rollinson, the new Treasurer, the balance of money in hand after deducting sufficient money to cover bills ordered paid at to-night's meeting, and after the new Treasurer has given his bond and same has been approved by Counsel. Motion was duly seconded, and on vote being taken was carried.

Question was raised as to where the next meeting should be held.

Mr. Speir offered the Village Hall at South Orange.

Mr. Jones moved that the offer of the Village Hall at South Orange be accepted. Motion was duly seconded and carried.

Mr. Baumann moved that when the meeting adjourned it would adjourn to meet at the call of the Chair. Motion was duly seconded and carried.

Mr. Eschenfelder moved that the Chair appoint an Auditing Committee, also a committee to decide on the disposition of the office furniture with power to sell. Motion was duly seconded and carried.

Chair appointed Messrs. Baumann, Jones and Kenney as an Auditing Committee, and Messrs. Sharp, Eschenfelder and Kenney as a committee to dispose of the office furniture.

Question as to the advisability of purchasing the cleaning outfit of Earle & Dougherty was brought up.

Mr. Jones moved that the matter be referred to the Engineer

to examine the cleaning apparatus and make a report at the next meeting. Motion was duly seconded and carried.

On motion the meeting adjourned.

WM. ROLLINSON,
Secretary.

END OF CONSTRUCTION PERIOD.

APPENDIX.

Preliminary Report of Alexander Potter
— on —
DESIGN OF MAIN TRUNK SEWER
— from —
TIDE WATER
— to —
JUNCTION EAST AND WEST BRANCHES.

---

137 Broadway, New York City,
September 29th, 1898.

To Robert S. Sinclair, Esq., W. L. Glorieux, Esq., Harrison Van Duyne, Esq., F. Cumming, Esq., T. E. Connolly, Esq., and C. O. Lyon, Esq.

Gentlemen:—

In accordance with a letter, dated August 10th, 1898, received from Robert S. Sinclair, Esq., acting on behalf of the representatives of the City of Newark and the Towns of Irvington, Vailsburg, West Orange and South Orange, instructing me to prepare a report, and to make all preliminary surveys, investigations, estimates and plans of a trunk sewer to tide-water to provide for the sewerage of the above mentioned municipalities, I have the honor to transmit herewith my report, plans, etc., for a tide-water sewer, together with estimates of material and the cost of same.

Since starting these surveys the Town of Millburn has expressed a desire to join in this trunk sewer if it was feasible for them to do so, and as I found it to be entirely feasible, I have taken this factor into consideration in the treatment of this problem.

Respectfully submitted,

Alexander Potter.

INTRODUCTION.

Immediately upon the receipt of the letter referred to in my letter of transmissal, I commenced surveys of the different routes which were, upon examination, considered as offering a feasible solution to the problem of a trunk sewer to tide-water, and also an investigation of the effect of the discharge of sewage into the different bodies of water, and all possible points of discharge of a sewerage outlet.

I was put in possession of reports previously made to the town of South Orange by the different engineers who have been called upon to affect a satisfactory solution of the problem of disposing of the sewage of South Orange. Two of these reports, that of Mr. F. T. Crane, C. E., and one by Messrs. Hering and Owen, treated at length upon the question of a tide-water sewer, and I, therefore, deem it not inconsistent to give a brief summary of the conclusions arrived at by these gentlemen before proceeding with my own report, at least in so far as these reports deal with the question of the disposal of the sewage into tidal waters, as such information is of equal interest, not only to South Orange, but to all the municipalities now proposing to go to tide-water by a common outlet.

Report of Mr. Crane.

After discussing the various systems of sewage disposal, Mr. Crane concludes that what is known as the separate system, from which rain-water and ground-water are excluded, to tide-water would prove the most satisfactory and economical method of dealing with the sewage of South Orange. He designed his sewers to have a rated capacity of one hundred gallons per capita per day. His outlet sewer for South Orange is 15 inches in diameter, which changes to 12 inches and 10 inches in diameter at certain points on the line where the grade is steep. He designed his system for a present population of 4,500 people and for an ultimate population of 16,000 people. His report describes three different routes to tide-water: the line to Newark Bay being 10.5 miles long. The two other lines were to be connected with the Elizabeth City sewers, one of which was 7.4 miles long and the other 7.3 miles long. His estimated cost of the Newark Bay line was $79,500; of that reaching the Elizabeth sewers via Morris Avenue, $54,920; of

that reaching the Elizabeth sewers via Ursino Lake, $54,400; all from the southern limits of the Village.

Mr. Crane in his report pointed out that the cost of pumping the Orange Valley sewage, which is that part of Orange lying above South Orange, and which drains towards the Rahway River, would be at least $150.00 per month, with a present tributary population of 2,000 people. This statement is presented here and will be referred to in a later part of this report.

Report of Messrs. Hering and Owen.

These gentlemen, called upon to examine and report upon the report presented by Mr. Crane, made the following suggestions. They state that no ground water or leakage should be permitted to find its way into the sewers; that so far as possible sewers should be built in the public highways; that the grade of the sewers should be raised so as to keep the sewers above the river bottoms as far as possible where the sewer runs parallel or near the course of a stream. These gentlemen object to a sewer which has for an outlet any of the streams flowing through the meadows north of Elizabeth, or flowing into Newark Bay by a long length of line through the meadows, giving as their reasons low grades, decreased velocity and consequent accumulations in the pipes. They also point out the fact that underdrainage is necessary at certain points in the line, and recommend the admission of stream flow at certain points of the trunk sewer, in order to produce the required velocity, until such times as the flow of sewage is sufficient of itself to produce that velocity which is necessary to prevent deposits.

In discussing the question of the joint project for the towns referred to in their report, the area embraced being practically identical with that now under discussion, they estimate an ultimate tributary population of 50,000 people, and recommend that the sizes of the sewers be 15 inches through South Orange from Orange for 4,300 feet; thence 18 inches to the Village limits; thence 20 inches to the Irvington junction; thence 24 inches to the cast iron outlet; thence 22 inch cast iron pipe to Newark Bay.

They further recommend that the separate system be strictly adhered to and that a limit should be fixed for the quantity of discharge from each municipality as a protection in case insuffi-

cient care is exercised in complying with the necessary stipulations of the sewerage system.

They give as the estimated cost of this line the sum of $163,837, which does not include rights of way and engineering.

After the presentation of these reports the Village of South Orange found difficulties in carrying out the only one of the three schemes recommended by Mr. Crane, which was endorsed by Messrs. Hering and Owen, viz.: that of discharging the sewage into Newark Bay at a point near the Central Railroad of New Jersey's bridge, the property owners at this point strenuously objecting and threatening to interpose legal obstructions should any attempt be made to carry out the project. As an alternative route it was decided to join issue with Elizabeth and construct a sewer in the northern part of the City, to be known as the Alina Street sewer, which would empty into Woodruff Creek, which is a tributary of Bound Creek, which in turn empties into Newark Bay. The Village of South Orange was to pay the City of Elizabeth the sum of $30,000 for this outlet, and were, further, to enter into an agreement that if it became compulsory to extend this sewer further out across the meadows into Newark Bay, that the Village of South Orange would pay its share towards the construction of such a sewer. After a thorough examination of this outlet the South Orange Committee unhesitatingly condemned this point as an outlet for the Village of South Orange on the ground that none of the engineers reporting upon the project would take the responsibility of recommending it as a proper point for the discharge of the sewage even of the municipality of South Orange alone, and for a further reason that Bound Creek has already been condemned by the Newark Board as an unfit receptacle for sewage, and for the additional and highly important reason that no guarantee could be given as to the final cost of such a project.

SCOPE OF REPORT.

From the foregoing synopsis it will be seen that the question of providing a tide-water sewer discharging into Newark Bay or any point north of the City of Elizabeth has been very exhaustively discussed, and after spending some time in satisfying myself that the findings of the South Orange Committee were correct as to the impossibility of securing a proper outlet above the City, I had no recourse but to look to some point below Elizabeth for the satisfactory solution of the question in hand.

Surveys were made, both reconnaissance and preliminary surveys, of all points which might properly be considered feasible as sewer outlets.

It soon became evident that it would be essential to deliver the sewage into the Sound if a satisfactory disposal was to be effected. The idea of discharging into the Rahway River was abandoned: first on account of the excessive cost, and, secondly, because the cities and towns along the banks of that river could with justice protest against the dumping of crude sewage into that stream, even below the towns referred to, as the river has at present about all the sewage discharged into it that it can properly take care of, and, moreover, although discharging it below the towns, the fact of the river being affected by tidal flow, would cause the sewage to be carried up the stream and back towards the towns for twelve hours each day.

Outlet Should Be On Solid Ground.

From the experience of Newark and other cities similarly located it becomes at once evident that it is highly desirable to secure an outlet which shall be constructed on solid ground for its entire length. With this consideration the points feasible for a sewer outlet were confined to Bayway, south of and within the limits of the City of Elizabeth, a line parallel to and one thousand feet away from Bayway, but which is outside the limits of the City of Elizabeth, and Tremblay Point, about four miles below. As the outlet at Tremblay Point could be constructed with shallower cuttings and subsequently less cost, investigations were made looking to this point as the probable point of discharge. This also had the additional advantage of being further removed from any city. On account of the increased length of this line it was soon discovered that this point was impracticable, as there was not sufficient fall in the line to permit of an economical depth being secured, and upon a minimum grade the sewer at the Sound would be several feet below low water, a condition not desirable for the proper discharge of the sewage.

This left Bayway or the line parallel thereto outside Elizabeth as the most feasible and economical point of outlet. Of the two Bayway is recommended because this line would be constructed over three miles of streets laid out and occupied. Having deter

mined, therefore, upon the point of discharge, we turned our attention to the question of the dispersion of the sewage in the Sound.

Disposal by Dilution.

The discharge of sewage into a tidal stream, where the body of water is of sufficient volume to render the sewage inconsiderable, is as an effective method of disposal as the most elaborate system of filtration known. It is not and must not be considered as a means of getting rid of a troublesome waste easily, irrespective of whether it is likely to cause any damage or nuisance to ourselves or our neighbors. On the contrary, the organic matter becomes disintegrated by the action of the water, and is made more easily a prey to the oxygen contained therein, destroying the organic particles and reducing them to harmless compounds.

LIMIT OF DISPERSION.

The next question investigated was the limit of dispersion of the sewage discharged into the Sound at the proposed point of outlet. To determine this, floats were cast adrift off the point of discharge at all stages of the tide, and observations made on them during the run of the tide, both ebb and flow. The results of these investigations were very gratifying indeed, and the thorough dilution of the sewage can be guaranteed at all stages of the tide. Sewage discharged at flow tide would follow in the direction of the arrows as shown on the plan accompanying this report, and this same sewage, or what was left of it, would pass out through the Kills on the subsequent tide, without reaching the shore at any point. None of the floats grounded, indicating that the sewage would keep the center of the channel and would not and could not prove a menace to the people along the shores. The sewerage reaching the outlet during ebb tide will be carried down the Sound towards the mouth of the Rahway River for six miles.

In fact the disposal of the sewage at this point is very similar to the disposal of the sewage discharged into the East River, with the further advantage that at this point the sewage can be carried out into the centre of the stream and there, meeting the swift currents in the centre of the channel, will be carried rapidly onward and thoroughly diluted and destroyed.

The velocity of the current in the Sound, is, as is well known,

very much more rapid than the current in Newark Bay, and consequently a better disposal can there be effected than in Newark Bay.

JOINT OUTLET.

A gravity tide-water sewer for all the municipalities named is far more feasible than for any individual town, because increase in sewage means decreased grades and decreased grades means lesser cuttings and consequently cheaper sewers, for in such a project as the one under consideration the size of the pipe does not enter so largely into the problem as does the expense of the cuttings which are necessary in order to carry the sewage to tide-water.

Outlet Into Sound.

It is proposed to carry the sewer on the bottom of the Sound a distance of 200 feet from the shore, and into at least 20 feet of water.

Environment of the Outlet.

It is of interest to note that the outlet at Bayway is not in a residential section, but on the other hand, the sewage will enter the Sound at a point in the neighborhood of a manufactory of fertilizers.

This Point Selected for Elizabeth Sewerage Outlet.

I deem it proper to point out to you the fact that the City of Elizabeth has recently appointed a joint Board of Engineers to report upon a trunk sewer for the City of Elizabeth to carry off the entire sewage of the City, and this Board have recommended the adoption of this point as the best point for the discharge of the sewage of Elizabeth.

Attitude of the Elizabeth Authorities.

While the law gives a municipality or municipalities the right to pass through the streets of an adjacent community in order to reach tide-water, I thought it wise to determine the attitude of the officials of Elizabeth to the proposed sewer through the streets of Elizabeth. In a conference with Comptroller Carlton I learned that the City of Elizabeth would interpose no objections to the use of Bayway for its entire length, but it was suggested that for this

privilege the district through which our trunk sewer would run should be permitted to connect up with our trunk sewer and that the sewer should be constructed capable of providing sewerage facilities for this district. I have been fortunate enough in devising the grades of the sewer to obtain grades sufficiently great to allow for an additional tributary population of 20,000 people within the corporate limits of the City of Elizabeth, over and above the population served in the combined municipalities for which the trunk sewer is to be built. Thus we are enabled without any additional cost to ourselves, to pay, as it were, for our right of way through Elizabeth, an amount satisfactory to the people of that City.

ROUTE SELECTED.

By reference to the maps handed you herewith, the route selected for this trunk sewer can be seen. It will be noted that, beginning with the Sound at Bayway, it extends along that street for a distance of 18,750 feet to a point within 900 feet of Morris Avenue. At the point where the sewer leaves Bayway it crosses private property, as shown on the plans, for a distance of 9,075 feet to a point on the Salem Road near the ice pond, intercepting roads and also passing under the Lehigh Valley Railroad tracks, the grade line of the sewer under these tracks being elevation 40.0 feet, and that of the tracks 58.60 feet. From this point it follows along the road to station 296, from which point it cuts across private property until it strikes the west bank of a branch of the Elizabeth River, running along the side-hill of this stream about 10 feet above the bottom of the stream, to a point where it intercepts the road from Irvington. At this point the two divisions of the trunk sewer branch off, one to Irvington and the other to South Orange.

The scope of this report is, however, limited by this point of juncture and the details of the lines beyond it will be found in the additional reports to be presented to the local authorities at Irvington and South Orange, respectively.

RIGHT OF WAY.

Of the total length of this joint trunk line sewer, 60 per cent. is in the public highway, for which the right of way will cost little or nothing outside of the expense necessary to construct

the sewer. It has been impossible in the short time since I have been engaged upon this work to get anything like an estimate of the cost of rights of way, but as the line passes over land of small comparative value and whenever crossing roads we have planned to cross in such a way as to do as little damage as possible, it is my firm belief that the total cost of the rights of way will not prove a serious factor in the total estimated cost of the work.

GEOLOGICAL FEATURES OF THE LINE.

I have further made careful examination of the line for the purpose of determining the character of the material likely to be encountered, and as the result of this examination I have allowed in my estimate for the removal of about 8,000 cubic yards of rock, the greater part of which will be met with in the lower portion of the line. This estimate has been corroborated by a well-known sewer contractor, who, after the line had been located, made a careful investigation of the line in this regard in so far as the character of the soil could be determined by surface indications and the investigation of the wells and their digging in the vicinity of the line. Furthermore, the character of the rock is such as to render it comparatively easy of excavation. The City of Elizabeth allows contractors the sum of $1.25 per cubic yard for all rock encountered in excavation. The City of Newark allows a contractor $1.50 per cubic yard for rock practically the same in character as that to be met with on our line. In my estimates I have allowed $1.50 as the cost to the contractor for removing this rock.

The earth excavation along the entire line of this trunk sewer presents no serious difficulties as for the most part embankments will stand without any bracing whatever, and as the line lies for the most part above the bottom of the streams near which it runs, no difficulty is anticipated from quicksand and very little from water. However, provision has been made in the estimates for the insertion of the requisite amount of underdrainage.

TRIBUTARY POPULATION.

An examination of the general map accompanying this report will show the area which it is proposed to drain by this trunk

sewer. The total area of this district is 16,359 acres. It is almost impossible for any one to even predict with any degree of certainty to what extent the possible ultimate tributary population of this district may be approached. Many factors not now known may arise in the course of years which might upset whatever calculations may be made at the present time as to the probable unit population over this area.

Messrs. Hering and Owen estimated the tributary population of this section at 50,000.

I have deemed it wise to allow for a tributary population of 68,000 people. Even with such an allowance no guarantee can be given that the sewer now constructed will not be taxed to its fullest capacity long before the tributary territory embraced in this district is built up to its ultimate capacity. In the design of the system, therefore, I have borne this fact in mind, and have so devised the grades that the capacity of this sewer can be doubled at a future time at about 25 per cent. of the cost of constructing a duplicate line to tide-water. The character of this provision will be referred to in the discussion of the grades and sizes of sewers, and also in supplementary reports.

VELOCITY.

There is a velocity in sewers below which it is not advisable to permit the sewage to flow. A proper velocity will prevent the precipitation of the heavy matter in the sewage to the bottom of the sewers and also its deposit upon the sides of the sewer. The velocity should not, on the other hand, be too great, because there is a tendency to scour the bottom to such an extent that in the course of time there will be a positive wearing away of the material used in the construction of the sewers. In the design of this outlet sewer we have not been troubled with the question of maximum grades, but with that of minimum grades; in fact the problem has been to secure a grade high enough to produce the velocity considered requisite for the satisfactory operation of the sewer.

There is practically a unanimity among sanitary engineers that the velocity of the sewage when the sewer is running full of half full (the velocity being the same in either case) should be 150 feet per minute, and that under no conditions should the minimum velocity drop below 100 feet per minute. To secure

this when the minimum grade mentioned below is employed, the depth of the flow in the sewer should be maintained at 18-100 of its diameter, that is to say, the depth of the flow in the trunk sewer should not be less than about 5 inches. To secure this flow for some time to come, it will be necessary to admit a certain amount of stream flow to be taken in at points where practicable. There is no such point on the main line at which this can be done economically, but upon the feed lines, both that from South Orange and that from Irvington, there are several advantageous points at which water can be admitted to the sewers from the streams. I have been able to secure a grade for the sewer which will produce a velocity of 3 feet per second, or 180 feet per minute, in the sewers when they are running full or half full.

GRADES.

As stated, grades have been secured which give a velocity of 180 feet per minute when the sewer is running full or half full, and a uniform grade has been established throughout the line, or, rather, until we reach that point in Elizabeth where it is planned to admit the sewage of the tributary population of 20,000 people, before referred to, from which point to the river the grade changes. For the major part of the line the grade is .12 per cent. per hundred feet, and the remainder .2 per cent. per hundred feet. The point of change is at the intersection of Trenton Avenue and Bayway, 4,071 feet from the Sound.

SIZE.

The size of the trunk sewer was arrived at after determining the velocity and economic grades, by allowing a daily consumption of 50 gallons of water per capita per day over the entire area and calculating that 50 per cent. of this amount would flow off in six hours, during which six hours the sewer will be running full. With this assumption, it was found that the size of pipe required was 27 inches in diameter, which is not so large a conduit but that it can be constructed from vitrified salt glazed sewer pipe.

PROVISION FOR ADDITIONAL POPULATION.

As was stated under the last head, 50 per cent. of the sewage is assumed to flow off in six hours, the remaining 50 per cent. flowing off during the other 18 hours of the day, or, in other

words, the sewer during 18 hours of the day will run on an average of one-third full, the diminution in flow during these hours being due to the fact that the bulk of the water is consumed during the busy morning or mid-day hours. This being the case it is evident that if some provision were made to utilize this unused capacity of the sewers during this 75 per cent. of the day, the sewers could take care of a tributary population double that primarily privided for. This can be done on the feeders to the trunk line, both on the Irvington branch and on that from South Orange, and the grade on the trunk sewers from these respective municipalities will be so designed that should such extra provision be required at any time in the future this additional capacity can be secured at a cost of less than one quarter the cost of constructing a parallel trunk sewer to tide-water, the plan proposed being the construction of reservoirs which will hold the sewage during what might be termed the rush hours and permit it to flow uniformly away. To plan for this emergency and to allow proper grades for the same at this time adds nothing to the cost of present construction and is merely a matter of forethought which may be of great value in the future. An important additional advantage will be referred to in the supplementary reports.

DEPTH OF SEWERS.

It has been the desire of your Engineer to so devise the sewer that there would neither be need for siphoning or for constructing the sewer above the present surface of the ground. This has been generally possible; in fact, is possible throughout, excepting that at the upper stages of the line cheaper construction can be effected by raising the ground for a distance of about 400 feet about 3 feet above its present level. Also, along the road above Salem there are two low points in the road, which, if taken out, would greatly improve the road. As the sewer passes along the road at these low points, it was the opinion of your Engineer that as the grade of the sewer was very little below that of the ground, the cheapest and best construction would be to raise the grade of the street, thus rendering unnecessary the throwing of the sewer line into the side-hill above the road, where some difficulty might be encountered in securing the necessary rights of way, as such a line would be a decided disadvantage to the property in case it should be built upon. One allowance has been made in the estimates for this work.

The greatest cut on the line is 23 feet. This occurs at or near Rahway Avenue in the City of Elizabeth. Reference was made in a previous part of this report to the possibility of changing the line to run along Morris Avenue outside of the City of Elizabeth for the purpose of obviating the securing of rights of way over private property. The objection to this would be the necessity of changing the grades on an established public turnpike, at some points as much as 5 feet, as can be seen on the profile, which change your Engineer considered as more than counterbalancing the difficulties which might be encountered in securing rights of way over private property, especially since these rights of way are over lands which are not built up, and, in fact, are not even good farm property for the most part.

ALIGNMENT.

While the main trunk sewer is by no means straight from end to end, still it has been designed so that it may be inspected throughout. Manholes are to be placed at all changes in direction in order to permit of the inspection of every foot of pipe in the entire length of the sewer. The advantage of this method of construction, viz.: that of making all bends in the manholes, is that it affords the most easy and sure method of inspecting the sewer and of locating obstruction therein, without the necessity of a man crawling through the pipe to discover them.

VENTILATION.

The ventilation of sewers is one of the most important factors in their proper construction. There are many theories advanced for the proper ventilation of sewers, but the cheapest, best and most economical method of ventilating a trunk line sewer is through the perforations in the iron manhole covers, and it is proposed to adopt this method.

UNDER-DRAINAGE.

Throughout those portions where water is likely to be encountered, tile drains should be laid in the trench along side of the sewers. The joints of the tile drain should be wrapped around with common muslin to prevent their silting up. These tile drains can be led into the sewer pipe at the upper end of each manhole, until such times as the quantity of sewage becomes so

great as to render the admission of this drainage inexpedient, at which time these tile drains can be choked off or led into the nearest water course. The cost of this under-drainage is included in the estimate.

ESTIMATES OF MATERIAL AND COST.

For the purpose of making the estimates more clear, the entire line has been divided into five different sections, as shown on the profiles accompanying this report. The first section is 6,200 feet long, the others each 7,000 feet long. On each sheet will be found a detailed estimate of the amount of the various depths of cuttings to be met with on each section, the amount of rock excavation, approximately, and other details of the estimate. These individual estimates are tabulated and the tabulation is presented with this report. From this table it will be seen that 18 per cent. of the entire line has a less depth of cutting than 4 feet; 38 per cent. has a less depth of cutting than 6 feet; 55 per cent. of the line less than 8 feet; 75 per cent. less than 10 feet and 86 per cent. less than 12 feet depth of excavation. In such comparatively shallow cuts as these economical construction is absolutely assured, and there is no question but that if the work is let by public advertisement many bids will be received far below the estimate herewith presented.

The entire estimated cost for labor and material for the entire main trunk line is $84,173.83, to which must be added an allowance for the profit of the contractor, engineering fees, superintendence, rights of way and other contingencies, and I have deemed it wise to add 30 per cent. to the estimated cost of labor and material to cover these items, bringing the total cost of construction up to $109,425.96.

As I have stated before, I have gone over the ground with several reputable contractors, who have agreed to take this work at a figure that will bring the total cost of the trunk line very much below the figures stated in this report. This assures you a practical guarantee.

CONCLUSION.

Before closing, I desire in justice to myself to point out the fact that I was engaged for the preparation of a *preliminary* report only, and while I have perhaps given more attention to

this matter than might reasonably have been required in such a report, still it would be a matter of extreme gratification to me, if, before my association with your Committee terminates, your Committee might see their way clear to deputize me to present to you what I should consider a full and detailed set of plans and estimates, covering every possible point on your system, including a more thorough determination of the quantity of rock that will be encountered, and a more scientific setting forth of all the problems to be met with in the construction of any line which you may construct to tide-water than this preliminary report could possibly warrant, so that your Committee will have such full and complete information before them concerning every detail, that they will of themselves be able to comprehend clearly the most minute detail of every engineering difficulty, and thus be enabled by their own practical judgment to determine just what shall comprise the system which they will recommend for adoption. I should like also to obtain for them the opinions of several reliable sewer contractors on the line selected by your Committee for further investigation, as such construction is to a great extent a matter of practical common sense and wisdom, as well as engineering theory, and it is not beyond the comprehension, when properly elucidated, of any men of affairs such as compose your Committee. As your Committee will be engaged for some time in the determination of the apportionment of the cost of this trunk line sewer to the different municipalities which are represented upon your Joint Committee, or are likely to become interested, this time could very well be engaged in the preparation of the detailed plans, surveys and other investigating work, which work will be needed when the construction is taken up. In the meantime all calculations as to the cost can be based upon the estimate given herewith, as in no event, you may be assured, will the cost exceed the amount stated in this report.

I have the honor to be,

Respectfully,

ALEXANDER POTTER.

REPORT
— UPON —
WEST BRANCH OF MAIN TRUNK SEWER
— FOR —
SOUTH ORANGE VILLAGE AND TOWNSHIPS OF SOUTH ORANGE, MILLBURN AND WEST ORANGE.

PRELIMINARY REMARKS.

In accordance with the instructions given me on the 29th of September, 1898, to make surveys and prepare plans and preliminary estimates for extending the main trunk sewer from its intersection with the Irvington branch up to the West Orange line, I immediately began the investigation and surveys for this work and beg leave to report as follows:

As this report must be considered as supplementary to the report already presented by me upon the main trunk sewer to tide-water, it will be unnecessary to repeat herein anything concerning the general question of sewerage, but I take it that what is required of me is simply a description of the line to be recomemnded, together with the cost thereof and the proper apportionment to the various municipalities interested in this particular branch.

DESCRIPTION OF LINE.

Beginning at Union Avenue in Union County, the line follows up the east side of the Elizabeth River in a northwesterly direction for about one-third of a mile. From this point up to the intersection of the Millburn-Maplewood road the line may be said in general to follow the right of way of the old Peapack Railroad, running at certain points close to the right of way and at other points diverging several hundred feet for the purpose of overcoming irregularities in the ground and thus reducing the cost of construction. As is well known, on this line the height of land between the valleys of the Elizabeth River and the Rahway River has to be crossed, and the sewer grade at the highest point of this land is some 40 feet below the level of the ground. A tunnel some 3,000 feet in length has therefore been designed to meet this emergency. An examination has been made

as to the character of the ground through which the tunnel will have to be built, which reveals the fact that down to at least 30 feet in depth no rock will be encountered, the material met being hardpan. How much further the hardpan extends cannot be determined without actual borings, but as the geological formation gives us a soft sand stone immediately underlying the hardpan, in any event the tunnel can be put through quite economically.

The tunnel as designed will begin at Station 405, and will terminate at the Headlytown road at Station 435. From this point until it crosses Springfield Avenue, the excavation is comparatively easy, and is, with the exception of 100 feet, entirely below the surface of the ground. For the purpose of accommodating the hotels on the Millburn-Maplewood road, and also for the purpose of making it more advantageous to drain by gravity into this system the entire Townships of Millburn and South Orange, the trunk sewer has been extended across Valley Avenue to the aforesaid Millburn-Maplewood road, and is carried up this road until it strikes the Rahway River at the south boundary line of South Orange Township.

For facility of construction and for the further purpose of accommodating all the territory within the valley of the Rahway it has been deemed wise to keep this main trunk sewer in the bottom of the valley near the Rahway River, the grade being so fixed as to keep the bottom of the sewer as high as possible. accommodating all the territory within the valley of the Rahway River for the entire length of the Township and Village of South Orange. Where the line crosses South Orange Avenue it is designed to carry the sewer in an iron pipe through and alongside of the west side of the culvert over the stream. This construction will be made of cast iron pipe with the grade of the sewer 2 feet below the water level of the river.

Above South Orange Avenue the line is projected to keep as close to the right of way of the railroad as possible, as I have been informed that there is already a movement on foot to construct a boulevard from South Orange Avenue up to West Orange, the centre line of which shall be the existing line of the Street Railroad.

Of course there are no hard and fast lines regarding the

location of this trunk sewer, and it can be modified almost its entire length to meet any local conditions which might arise, such as convenience in securing rights of way in location other than that laid down on the map, providing no engineering difficulties arose.

POPULATION.

The smaller the district to be provided for the greater provision we must make for probable increase in population and the greater the size of the sewer. While we have a probable population for the entire area to be drained to be 68,000 people, we have deemed it wise for this section alone to assume an ultimate population of 50,000 people, and have designed the sewers accordingly.

GRADE.

The grade which is best adapted to the ground which this West Branch sewer will traverse from the junction of the Irvington line up to and through the Township of Millburn is fifteen one-hundredths feet per hundred.

As the amount of sewage to be taken care of according to the above mentioned factors will be 7.6 cubic feet per second, a 22-inch pipe will be required up to the point where the sewage of Millburn joins the sewage of South Orange and West Orange. From this point up to the South Orange northerly line, the sewer is constructed of 20-inch and 18-inch pipe, the location of these sizes depending not so much upon their nearness to the outlet as upon the ability to get grades sufficient to carry off the sewage which is tributary to this trunk sewer.

STORAGE TANKS.

It will be remembered that in my general report on the question of the construction of the trunk sewer, reference was made to the construction of certain tanks for the purpose of increasing the capacity of the sewers should they become surcharged by reason of the greater amount of sewage being contributed because of a greater population than now seems likely to occupy the territory embraced in this design.

The most economical place for the construction of these tanks is at a point in South Orange Township at Jefferson Avenue. The configuration of the ground at this point enables

us to obtain a drop of 8 feet in the sewers, which can be increased without great difficulty to 10 feet, forming an ideal spot for the location of a tank designed to regulate the flow of the sewage during the day, it being a fact, as is well known, that the sewers are so designed that they run full during six hours of the day and one-third full the balance of the day.

Since writing my report to the General Committee, where I first took up the question of tanks, I have had an opportunity of testing the accuracy of my statements that their construction would practically double the rated capacity of the sewers at a cost of about 25 per cent. of the cost of reduplicating the line to tide-water. While in Boston investigating matters in relation to the question of apportionment, I was given access to the gaugings of a sewer which had been conducted for two years through a territory which corresponds to ours in point of size. After making the necessary deductions for the effect of the ground water and also disregarding the effect of the storm water in the sewers, I found that the rate of flow between the time of greatest flow and least flow varied as two to one, showing conclusively that if some method could be adopted for regulating this flow, sewers designed to meet a rated capacity of 100 gallons can be utilized to take care of almost twice this amount of sewage.

Outside the construction of the tunnel there are no engineering difficulties in the construction of this entire line. True, along the Rahway River the grade line of the sewer is on about the same level as that of the bottom of the stream, but as the depth of the trench is in general but from 2 to 4 feet deep, no amount of water that can possibly find its way into the trench from the stream can cause any great engineering difficulty in the economic construction of a water tight line.

COST.

The cost of constructing the line from the junction of the Irvington line to the southern boundary line of the Township of South Orange is $49,579, and consists of the construction of 16,400 feet of 22-inch pipe and 1,800 feet of 20-inch pipe. The cost of this is apportioned between the Village of South Orange and the Townships of West Orange, Millburn and South Orange in the proportion that their individual percentage bears to the total percentage of ultimate possible population of the four places

in question. This gives an apportionment of $13,683.81, or 27.6 per cent. of the cost, to South Orange Village; $18,294.66 to West Orange, or 36.9 per cent. of the cost; $9,221.70 to Millburn, or 18.6 per cent. of the cost; $8,378.86 to South Orange Township, or 16.9 per cent. of the cost.

The cost of the line from the southerly line of South Orange Township to the southerly line of South Orange Village is $13,322, and consists of the construction of 4,700 feet of 20-inch pipe and 3,100 feet of 18-inch pipe. Of this South Orange Village will pay 32.9 per cent; West Orange 45.5 per cent.; and South Orange Township 20.6 per cent.

From South Orange Village line to the southerly line of West Orange the cost of construction will be $14,460, of which South Orange Village will pay 42.8 per cent. and West Orange 57.2 per cent.

Combining these percentages we have a total cost for the Village of South Orange for the trunk sewer from the Irvington junction to the northerly village line of South Orange of $24,391.42, or a grand total cost of $44,533.27 from tide-water; the total cost to West Orange of $32,630.72, or $57,072.72 in all; the total cost to South Orange Township $11,123.19; and the cost to Millburn $9,221.70, or including its share of the main trunk sewer, $21,541.70; making the total cost of the West Branch of the Trunk Sewer $77,367.03.

ADVANTAGE OF LOCATION.

In this apportionment no advantage has been charged to any of the municipalities by reason of their location, although it is evident that a town derives considerable advantage by reason of the main trunk sewer passing through their territory. It would indeed be a difficult matter to determine in dollars and cents the exact advantage accruing to the towns by reason of this natural advantage of location, and I can find no precedent in any of the apportionments made on other joint schemes whereby one town was credited by reason of its disadvantageous location and charged an additional amount, above its proper apportionment, because it could the better and more conveniently make use of the trunk sewers which were in part paid for by adjoining communities, but which the town using would have been compelled to construct itself in all events.

A clear illustration of the advantage gained by such a town I find in the reports of the Metropolitan Sewerage Commission of Massachusetts, and I quote from the report of the Sewer Committee of the town of Winchester concerning the saving which they were enabled to effect by reason of their location: "When the Metropolitan sewer shall be completed we shall have approximately 34,000 feet, or nearly six miles, of State sewer. The advantage, owing to our location, of having the State construct a main trunk sewer through Winchester in order to reach other places beyond, is of great assistance in the solution of our sewerage problem.

"For if the State had constructed the sewer only to our town line, we would have had to construct these trunk lines at our own expense."

Notwithstanding this acknowledged advantage made by the municipality's officers themselves, no additional charge was made to this village by reason of the immense amount of saving thus effected by reason of having sewers constructed for them at the State's expense.

If we were to launch out in an attempt to include such refinements in our apportionment, I fear we would find ourselves in an interminable tangle. I have therefore disregarded a town's location and its ability to use main trunk sewers to its evident saving, because towns not so favored by natural position have other equally important concessions in their favor to offset any apparent disadvantage in this particular.

Construction of this branch of the main trunk can be advantageously commenced as soon as contracts can be let; on account of the heavy construction, the work can progress throughout the winter.

Respectfully submitted,

ALEXANDER POTTER.

REPORT
— UPON THE —
EAST BRANCH OF THE MAIN TRUNK SEWER
— TO —
TIDE WATER,
COVERING THE DISTRICTS OF NEWARK, IRVINGTON, VAILSBURG AND A SMALL PORTION OF SOUTH ORANGE VILLAGE AND TOWNSHIP.

It is presumed that before reaching this section of the report the reader has familiarized himself with the statements in other parts of the report applicable to this division of the work which might properly be known as the Irvington or East Branch.

DESCRIPTION OF LINE.

Beginning at Union Avenue, in Union County, at the junction of the West Branch or South Orange division, the line traverses the public road until it gets within five hundred (500) feet of where the East Branch of the Elizabeth River crosses the road. The shortest and perhaps the best description of the line from this point is that it follows up the west bank of this branch of the stream until it crosses Springfield Avenue, in the Town of Irvington.

Before this point is reached, however, two lateral branch mains have already separated, one going up Lyons Avenue direct to the Newark City line, and the other following a rather devious course to the City of Newark's line at 19th Avenue.

From Springfield Avenue in Irvington the line changes to the east side of the river, following the streets where practicable, until it reaches the northerly line of Irvington.

From this point it branches out in two directions, one stem to take care of South Orange and the western part of Vailsburg, the other to take care of the eastern part of Vailsburg, Manhattan Park, which is within the limits of the Town of Irvington, and also to provide a third outlet for the City of Newark.

These various lines are shown on the map accompanying this report.

There are no great engineering difficulties to be overcome, but this very fact should make it apparent that the greatest care should be exercised in its construction. Weaknesses and defects in construction are always found where they are least expected, and the character of the ground and the location of the line are such that a little poor workmanship would well nigh render the entire scheme ineffectual.

POPULATION.

The sewers on this line are designed for an ultimate population of 40,000 people, and grades are devised accordingly.

STORAGE TANKS.

Provision has been made in the grade of the sewer for the construction of storage tanks at some subsequent time for the regulation of the daily flow in the sewers, which, as was pointed out, varies so much that sewers running full at one time are practically empty at another. The location for such a tank is fixed below the ice ponds on Union Avenue, south.

COST.

The cost of constructing the line from the junction of the West, or South Orange division, is $41,416.90, and consists of the construction of 4,800 feet of 18-inch pipe; 9,900 feet of 15-inch pipe; 5,000 feet of 12-inch pipe; 11,300 feet of 10-inch pipe; 9,700 feet of 8-inch pipe.

The cost of this is apportioned between the City of Newark, the Town of Irvington, the Village of South Orange, and the Borough of Vailsburg, in the proportion that their individual percentage of the main trunk sewer bears to the total percentage of the towns interested in this particular branch; excepting that South Orange, having only 6 per cent. of its ultimate population cared for by this branch, will therefore be liable only to that extent.

Of this cost Newark will pay $13,771.91 or $29,611.91 in all.
Irvington will pay $12,734.27 or $27,364.27 in all.
Vailsburg will pay $10,900.40 or $23,110.40 in all.
South Orange will pay $801.88 or $44,553.27 in all.

The expense of building the line from the junction to Irvington's north line is divided as follows:

Newark, 33.4 per cent.
Irvington, 36.2 per cent.
Vailsburg, 27.9 per cent.
South Orange Village, 2.5 per cent.

The line up Lyons Avenue and the line up Augusta Street, Springfield Avenue and Grove Street to 19th Avenue, is paid for by Newark and Irvington in the proportion of 48.0 per cent. and 52.0 per cent., respectively.

The line from Irvington's north line to Newark's line on South Orange Avenue is paid for by Newark in the proportion of 34.3 per cent.

By Irvington in the proportion of 37.1 per cent., and
By Vailsburg in the proportion of 28.6 per cent.

The line from Irvington's north line to South Orange Village line at South Orange Avenue is paid for by Vailsburg, 91.7 per cent., and by South Orange Village, 8.3 per cent.

ADVANTAGE OF LOCATION.

As stated in reports to the other municipalities, no consideration has been finally given to the location of certain municipalities on the ground of their ability to use trunk sewers to their apparent advantage over other places. Newark, for instance, might claim that a hardship was inflicted by compelling it to pay its full share towards the construction of main trunk sewers through Irvington and Vailsburg, but in return the latter towns can with justice offset such a claim by the statement that these same trunk sewers provide three, and a possible fourth, distinct outlet for Newark, thereby saving Newark the construction of a trunk sewer if she were compelled to bring her sewage to one point before making use of the joint outlet. The cost to Newark of such a sewer would be more than the total cost of all the trunk sewers in the East Branch. This is a concrete example of the difficulties to be encountered in striving to make a just apportionment and secure a unity of division of cost.

The construction of this line, if ordered immediately, could readily be completed by the first of August, 1899.

Respectfully submitted,

ALEXANDER POTTER.

REPORT
— UPON —
APPORTIONMENT OF COST
— TO —
VARIOUS MUNICIPALITIES.

---

137 Broadway, New York City.
September 29th, 1898.

To Robert S. Sinclair, Esq., W. L. Glorieux, Esq., Harrison Van Duyne, Esq., F. Cummings, Esq., T. E. Connolly, Esq., and C. O. Lyon, Esq.

Gentlemen:—

In pursuance of the instructions given me by your Committee at a meeting held September 29th, 1898, I have the honor to submit herewith a report upon the apportionment of the construction of a tide-water sewer among the various municipalities that are likely to join issue in this important undertaking.

Respectfully submitted,

ALEXANDER POTTER.

REPORT.

When appointed your representative to investigate the question of a proper apportionment of the cost of construction of this tide-water sewer, I was not inappreciative of the difficulties of the task, which, as the investigation advanced, proved themselves more onerous and more serious than I believed them to be when I first undertook the investigation. Very few instances of such combined action on the part of the municipalities are found that offer precedent in the consideration before us, and the various methods of apportionment adopted by those combined municipalities have not in the cases met proved wholly just in many instances, leaving thus a broad and fallow field for the attainment of more perfect and equitable methods. By the experience of those cases on record we may, however, profit. I have therefore endeavored to give the matter exhaustive study and have not attempted to limit the scope of my investigation to the apportionment of cost to the combined sewerage systems, but have extended my inquiries to combinations relative to water works, park systems and other forms

of general public improvements calling for some system of apportionment of cost among several municipalities benefited by the said improvements.

The State of Massachusetts has perhaps evidenced its appreciation of the benefits to be derived from combination in public improvements of this nature, and legislative sanction has been given for the construction of sewerage systems, water works and park systems to a far greater extent than in any other State in the Union. Accordingly I felt that my investigation would be greatly aided and would not be complete without a personal visit to that section of Massachusetts which is at present interested in the promotion of such combined action regarding public improvements for the purpose of seeing and determining by personal investigation the primary motives of these enterprises and the various steps by which they reached their final consummation; how the apportionment of the cost of these various works was provided for and to judge how that apportionment was received by the various municipalities interested. I therefore spent some time in the various cities and towns in Massachusetts, going over the ground and consulting with various officers and citizens in the municipalities in connection with the government of these schemes, and I am indebted to these gentlemen for their valuable information and the courtesies extended to me in my investigation.

Coming nearer home I found that the Towns of Montclair, Bloomfield and Orange had joined issue in the construction of a sewer to the Passaic River.

The method of apportionment used by these towns and also in the Metropolitan Sewerage System of Massachusetts, together with that of the Metropolitan Water Supply and the Metropolitan Park Commission of the same State, also the Park Commission of your own Essex County Park System, and others, I shall discuss at length a little later in this report. These are without doubt the best examples of such combined enterprise in the country, nor can we obtain greater light from any works across seas which would at all be applicable to the question under our consideration.

For a better appreciation of the subject I will first set before you a few concise statements regarding the municipalities inter-

ested or likely to become interested in the joint outlet sewer now under consideration. In this consideration provision has been made for all the territory which can utilize this trunk sewer to tide water, whether they have expressed their willingness to join in the enterprise or not, because with such a combination sewerage facilities can be provided for each of the municipalities thus joining, at a cost far below that which it would be necessary for any of them to expend should any one of them attempt to construct an independent system of sewage disposal.

It will perhaps aid you in a clear comprehension of the discussion upon which we are about to enter to place before you in tabular form the area, present population, assessed valuation and the tax rate of the various municipalities connected with the proposed undertaking, and this table will be referred to at various points in the report.

TABLE.

Town.	Area.	Per Cent. Area.	Population.	Per Cent. Population.	Assessed Value.	Per Cent. Ass. Value.	Tax Rate.
Irvington	1,267	.099	4,500	.198	$1,800,000	.132	$2.25
Millburn	2,800	.219	2,400	.106	1,350,250	.099	2.00
Newark	289	.022	2,000	.088	1,295,000	.095	2.10
South Orange Township	3,754	.293	1,500	.066	975,900	.072	1.68
South Orange Village	1,575	.123	4,500	.198	3,320,000	.224	1.98
Vailsburg	806	.063	1,800	.079	900,000	.068	1.54
West Orange	2,325	.182	6,000	.264	3,962,250	.291	2.98

The valuations given in all cases are only those portions of the various municipalities to be taken care of by the system.

It is fair to state that the figures given in this table for West Orange include, at the request of the West Orange Township Committee, that portion of the City of Orange which now drains into the Valley of the Rahway River.

A casual observation of these percentages by any one actually acquainted with any or all of the various municipalities interested in this venture will satisfy them that an apportionment could not be made with justice on the basis of any particular one of these items. It is our duty, therefore, to secure some basis of apportionment which will be fair to all, and at the same time be acceptable to all parties interested in the construction of this joint outlet sewer.

In the discussion of this problem a leading principle to guide us may be arrived at by a study of the laws and judicial decisions of the State of New Jersey for the last twenty or more years. These decisions have been a distinct departure from the principle and precedent of earlier times and still adhered to largely in many of the other States in the Union, among them New York and Massachusetts, viz.: decisions regarding the foot-frontage assessments on property for public improvements. The decisions of the courts of New Jersey, although a direct departure from precedent, were, as relating to this matter, so eminently just and fair as to receive the endorsement of such a jurist as Judge Dillon in his book on "Municipal Corporations," and to deserve the following of these decisions as precedents in other States. I refer to the attitude of the New Jersey courts in relation to these local assessments simply as indicating the spirit of the laws in your own State regarding all assessments for public improvements, a spirit which we should not ignore, but by which we should be fundamentally guided in all our considerations of the subject in hand. It should not be a matter of surprise, therefore, if our investigations have lead us to depart somewhat from the spirit in which Massachusetts, with its adherence to the old precedent, which assessed the foot frontage instead of considering largely the special benefits received by the public at large from public improvements, caused the Metropolitan Sewerage Commission in its method of apportionment to cling closely to precedent, not because they are the most just, but because they considered uniformity of practice the greatest good to be sought. But New Jersey decisions have in one notable regard already departed from formerly established precedent, and that is the one just referred to.

Up to 1875 the cost of construction of public improvements was assessed upon all property bordering upon the said improvement according to its foot frontage thereon. This worked the greatest injustice, notably in the City of Elizabeth and the City of Newark. In 1875, however, the courts of New Jersey departed from the old established precedents which declared this to be a just method, and in what is called the "Agens Case" and following decisions, have declared that the element of *special benefits* should qualify the amount of assessments charged against property owners for public improvements and that "an assessment of the cost of local improvements or all or two-thirds of the cost could not be

made arbitrarily on the land fronting on the said improvement; that the assessment to be valid must be laid proportionately according to the benefits conferred and not in excess thereof; and hence that assessments of the entire cost of improvements made upon adjoining land 'by the lineal foot' or otherwise, without regard to the particular benefits each lot received, were unconstitutional and void." Formulating his premise principally from the New Jersey decisions and the spirit of your law, Judge Dillon briefly states the correct principle for sewer assessments to be "that the assessment upon each parcel of contributing property shall be according to the special benefits which the particular parcel receives; that *benefit, actual and probable,* is the only foundation upon which the assessment can lawfully rest."

Since, then, we find the decisions in the State of New Jersey strongly and undividedly in favor of the law of special benefits in relation to local sewer assessments, it would be rightly argued that we ought to apply to the aggregation of individuals the *same* law which is applied in municipalities to the individual himself, and to extend the spirit of this law to the apportionment upon the larger basis which we now have under our consideration. We have, therefore, been unable to follow the same general rule of apportionment of cost according to assessed valuation, as applied in the Metropolitan Sewerage System in Massachusetts, which is perhaps the largest combination of municipalities yet effected, because that assessment was based upon the arbitrary rule of valuation without regard to special benefits which might be received by one community over another.

Taking the spirit of your laws, therefore, for our fundamental finding, I will now turn to the discussion of the various elements which might be considered as entering into the question of the determination of the apportionment, such as area, population, water supply, valuation, use, etc., and will endeavor to set forth arguments drawn from my investigations for and against the use of these different elements as bases of apportionment.

AREA.

Naturally the first element to be considered is that of area. It must be acknowledged even with a most superficial study that area in itself is absolutely useless as a basis of assessment and adjudication, because area, apart from use, means nothing. For

its consideration we must have a knowledge of the character of the ground within the area in question. It must be determined whether this area is a broad expanse of bottomless marsh or quagmire, unfitted for the habitation of man, or whether it is steep mountain or hill side, where even tree life can secure scant foothold. We must know the environment of the different sections of the area, whether the neighborhood is built upon with large and magnificent homes, having extensive grounds and gardens, or whether the territory is occupied or likely to be occupied as factory or mill sites with the inevitable cutting up of the adjacent lands into small lots to be used and occupied by the homes of mill workers and having as many people contributing to the sewers on the acre as might perhaps be tributary to the square mile in other portions of the district to be drained. These are a few of the considerations which must receive a personal study before the fact of area can make itself felt upon the determination of the problem, and to these considerations I have given the most careful attention, going over almost every acre of the entire area to be drained by the trunk sewer and giving its character personal examination.

On this basis it is evident that a town, village or township which has much of its territory made up of marsh lands or steep hill sides should not be assessed for sewers on the same basis as districts which are more favorably situated or located for a large increase of population in the future. Again, the greater the area of certain suburban districts, the larger the subdivisions of individual owners and therefore the less need of the individual properties contributing to the sewers, as cesspools or private disposal grounds are far less objectionable than in closely built up districts.

Area, therefore, can only be considered when a detailed examination has been made of all the lands within the territory to be drained, and then only when there is some qualifying factor which might be used as a check to the correctness of the conclusions reached by this determination.

As stated, such an examination has been made of all the territory within the limits of this district and the result of this examination will be referred to in a subsequent part of this report. As a matter of interest I present here an exhibit of the various percentages which would be assessed upon the various munici-

palities should area be taken as a basis of apportionment. Referring to the table already given, we find that if the apportionment should be made upon this basis alone, South Orange Township should have to bear 29.3 per cent. of the cost.

Millburn, 21.9 per cent.

West Orange, 19.0 per cent.

South Orange Village (with a valuation more than three times that of South Orange Township, and a population three times as great), only 12.3 per cent.

Irvington, 9.9 per cent.

Vailsburg, 6.2 per cent.

Newark, 2.2 per cent., though the two latter towns have perhaps the greatest promise of growth in the near future and of material and immediate benefit from a sewerage system.

In other words, South Orange Township would be asked to pay over thirteen times as much as Newark, which has a present population greater than South Orange Township and with every prospect that within the next ten years the population of Newark's district will exceed that of South Orange Township by as many times as the area of South Orange Township exceeds the area of Newark's portion.

To further emphasize the impracticability and injustice of utilizing this as a basis of apportionment, it should be borne in mind that South Orange Township does not now nor will it in the near future have the need of sewerage facilities as will such municipalities as Newark and other cities destined to become closely built upon.

In the consideration of an element which admits of so much variation in getting at a true apportionment, it is hard to see how the question of area in itself can be utilized even as a factor in the determination of the relative amounts to be paid by the municipalities contemplating the construction of this joint sewer.

VALUATION.

We will now turn our attention to the question of valuation as a basis of apportionment. Perhaps the most convincing arguments possible to be advanced in support of any one basis of apportionment can be brought forward in support of valuation. Many specious arguments were advanced at the second hearing of

the Metropolitan Sewerage Commission, appointed by the Massachusetts Supreme Court, to determine the apportionment of the cost of the Metropolitan Sewerage System, which it might not be inappropriate to state briefly at this juncture.

This was a system of sewers designed to relieve the numerous cities and towns in the suburbs of Boston, within a radius of ten or fifteen miles, which had for years disposed of their sewage by emptying it into the streams flowing through and around their towns, concentrating for the most part at the City of Boston in the Charles and Mystic Rivers. Years of accumulation of this putrescent matter had produced a condition of affairs in and around Boston detrimental to health and absolutely unendurable on account of obnoxious odors. The cost of this system was paid for by the issuance of fifty-year bonds to the extent of about $5,830,000, the legislature providing that the interest and sinking fund should be met by an assessment against the various municipalities, to be reapportioned once every five years by three commissioners, who were non-resident of any of the cities or municipalities within the limit of the area to be drained.

The Commission appointed to apportion the cost among the various municipalities chose as their basis the assessed valuation, and the arguments advanced in support of this method were, briefly, the following: that health being wealth, the protection of health is the protection of wealth, and that therefore the improvement should be paid for upon a basis of wealth, or, assessed valuation alone: that as all national, state, county or municipal taxes are based on valuation, then why should not sewers be paid for upon the same basis; that apportionment upon the basis of valuation is one easily understood, simple, and established upon a fixed principle and not upon theory or guess work; that valuation gives us a law of apportionment that is as near as may be just, and which is stable and not subject to change.

In support of his argument on this contention, Mr. Z. S. Bowman, who represented the City of Somerville at the hearing before the Metropolitan Sewerage Commission in 1891, said: "And I think that what each town here wants is to be treated exactly like every other town. I think it would be objectionable to have an arbitrary assessment upon no fixed rule. I think it would be generally unsatisfactory, because each town would say, 'We do not know how this was arrived at.' If the tax is large, and we know

that the others are taxed in the same proportion according to the benefits they receive, we should not have a word to say. Even if the rule that may be adopted is apparently unjust, or we could criticise it, still we should feel that we were not discriminated against and that we were treated in the same manner as the other towns." But it is yet to be proved that a tax according to valuation is "according to the benefits received," and that certain towns are not, in the last analysis, "discriminated against" and worked great injustice by this same system of valuation.

A system of sewers, it has been argued, is for the common use, the common protection, the common defense, and therefore the cost should be proportionately distributed. In support of this latter contention, I need not call to your mind that disease is communicated not only by that which we eat and drink, but also by the inhalation of disease germs communicated through the air we breathe. It is therefore strictly within our province to guard well, not only the surroundings of our own homes and towns, but also to insist that the surrounding and adjacent municipalities and neighboring communities have sanitary arrangements and air as pure as science can procure. If this is our right, then it is not a fallacious argument to say that what we have the right to demand we should also feel a duty to help to pay for. Thus it can be argued that wealth should help to pay for such a privilege or demand an even greater proportion than the personal share of the individual or his proportionate share of the use of the sewers.

In further support of this contention of payment on the basis of valuation, and in order that we may look upon it in the fairest possible light before reaching our conclusions, I quote the opinion of that eminent jurist, Judge Cooley, in his treatise on "Constitutional Law," 6th Ed., p. 623, in which he says: "A proportionate tax for the general purposes of government, either of the State at large, or of the county, city or other district, is regarded as a just and equitable tax. The reason is obvious. It apportions the burden according to the benefit more nearly than any other *inflexible* rule of taxation. The rich man derives more benefit from taxation in the protection and improvement of his property than the poor man, and ought, therefore, to pay more."

It was also argued that while sewerage is a health measure it at the same time makes property more valuable, and that

therefore values, in the last analysis, should pay for such improvements; that furthermore, it is a recognized principle of government that property should pay for improvements.

While these arguments can be and were advanced with much force before the various Commissions in Massachusetts, still we must admit that the principle was more applicable there than in the case which we have under consideration, first, because all the towns in that system were older and had in all cases assumed what might be termed their normal growth, and, second, because the law authorizing the construction of these sewers provided for the issuance of fifty-year bonds and the readjustment of the apportionment once every five years. Two conditions which are not applicable in our case, because several of our municipalities have by no means reached a normal growth, nor have we any protective legislative enactment of the sort just referred to.

The method of valuation, while received with general favor by the cities in the Metropolitan Sewerage system, worked great hardships upon many of the towns in the district which were forced by this same legislative enactment to become a part of the district on account of their location, although they had better sewers, as far as they themselves were concerned, than they now have under the Metropolitan Sewerage System, while the cost of operating their own systems was comparatively nothing compared with the charge upon them under the larger combined system.

For example, the town of Winthrop had just completed a system of sewers at a great cost, and the outlet for their sewers was not far distant from the proposed outlet for the combined district. Yet because the main trunk of the Metropolitan sewers was designed to pass through their town, the town was compelled to abandon its own outlet, pay its share of the cost of constructing sewers for twenty inland towns, and also pay its full proportionate share of pumping the sewage of all these towns three times, notwithstanding that by its own system the sewage from the town flowed by gravity to the sea. The Commission for the Metropolitan Sewers had it in their jurisdiction to make a special exception in such a case where hardship might be inflicted and not apply the general law of assessment by valuation, but so great was the tenacity with which the Commission clung to the established precedent, that no deviations were made in any case, not even to the town of Winthrop. This might be done in Massachusetts,

because, as we have stated, the law gave them the right to enforce such conditions even to the working of great hardship, but such a principle would hardly be acceptable in the case of your apportionment, because, in the first place, there is no law to sustain or compel the entrance of any municipality into this combined system nor have the courts of New Jersey themselves adhered with such strictness to the old time precedent which has over and over again worked untold hardship upon various communities. The municipalities about to engage in this undertaking are doing so of their own free will and volition, and not because compelled by any legslative enactment, as was the case with many of the eastern cities, though such a thing may not be so far distant even in New Jersey when we observe the pollution of the Passaic and the rapid growth of the towns in this prosperous part of the State, unless some action is taken by the cities and towns themselves looking to the general health. But the cities connected with the system which we are discussing have undertaken this matter for themselves and for their own special betterment, as well as for the general welfare and future health and prosperity of the communities in this section, and consequently all that they are undertaking should be characterized, as it has been in the past action taken, by eminently just and equitable conditions, which will work the least amount of hardship to all the united communities, but which will at the same time enable the weaker and less able municipalities to co-operate with their sister towns in the securing and enjoyment of what must ultimately be to the general advancement of all.

Another instance, as proving that on the strict basis of valuation injustices were unavoidable, may be of interest. The town of Somerville, Mass., had a combined system of sewerage discharging directly into the rivers contiguous to its shores, but was compelled to connect with the new system, although during rainy weather their connection with this system is shut off and they are compelled to use their old channels of discharge, thus necessitating the maintenance of two different systems of outlets and getting at certain seasons of the year absolutely no benefit from the Metropolitan System but rather a detriment. This town, furthermore, contributed annually to the cost of this combined sewer for five years about $25,000, without having any connection whatever with the system in question and towards which it was paying so large an amount.

In view of such exhibits it seems strange that the method of apportionment by assessed valuation should be so generally accepted by all parties.

Perhaps a convincing argument against the use of valuation as a basis of apportionment is the statement of the fact that there are almost infinite variations in the method of making the assessment or estimates of valuation, some towns having a high tax rate and low valuation, others wishing the opposite condition to exist, and therefore having a low tax rate and high valuation. Assessed valuation may, therefore, be uncertain and unjust, and with all propriety might be considered as arbitrary and consequently unconstitutional.

Again, in our case, as we have stated before, there are interested in this scheme several new and rapidly growing communities, whose valuation will be vastly more five years from now than at the present time, and consequently a percentage based now on valuation would be manifestly unfair to the other towns within the district which have reached their normal growth, especially since the rapidly growing towns will receive the greater advantage from the introduction of sewers and as time goes on their growth will only be the more assured on account of these very improvements towards which on a basis of valuation they would now contribute so small a percentage, while the paying for the sewer will go on perhaps for some thirty years to come on the basis now set. The basis fixed at the present time should, therefore, justly take that fact into consideration and this would come distinctly under the principle of special benefits, so strongly upheld as the basis of assessment by the New Jersey courts.

This inequality in the character of the towns makes the determination of the apportionment on the basis of valuation an extremely hazardous one. As a matter of interest it might be well to give the relative percentages of the cost chargeable to each town should this method of apportionment be considered.

West Orange, .291 per cent.
South Orange Village, .224 per cent.
Irvington, .132 per cent.
Newark, .095 per cent.
Millburn, .099 per cent.
South Orange Township, .072 per cent.
Vailsburg, .068 per cent.

POPULATION.

The argument previously used in this report, viz.: that some of the towns in this district have not reached their normal growth forms an equally good reason why the apportionment should not be made upon the basis of population.

Referring again to the method of apportionment adopted by the Metropolitan Commission it is of interest to note that while the Commissions of 1891 and 1895 decided in favor of valuation as the basis of the apportionment for the cost of construction, a previous Commission in 1885, appointed before the question of construction had been definitely settled upon, decided in favor of population as a basis, and used the following argument in coming to its conclusion: "It will be readily appreciated that fixing the rate of apportionment proved to be an exceedingly perplexing job. In approaching the task we naturally sought for some guiding principle to direct us amid the multifarious and conflicting elements of the problem. The analogies of highways and bridges, the ratio of valuations, the relative convenience, the proportion of numbers and areas, the probable amount of contribution, the comparative difficulty of access, the length of line used, and some other considerations, all required to be weighed and measured. No one of these various constituents seemed of itself to furnish the required standard. In each there seemed something lacking to the accurate adjustment of the competing claims. In fact, we failed to find any absolutely sure and unerring criterion upon which to base a judgment in these cases. There must necessarily be a certain something of arbitrariness, a seeming absence of exact principle, and lack of scientific precision about such apportionments. It is difficult to defend them by purely logical arguments. They partake of the nature of compromises, which must seek for justification upon grounds of an all-things-considered fairness and honesty. Feeling thus, and despairing of discovering a perfect test, we were forced to accept as a measure of liability which, if not perfect, seemed to us to be the best attainable, a careful estimate of the approximate worth of the service rendered. No better gauge of this value received occurred to us, upon the whole, than the number of people served."

It will be observed that the keynote of this conclusion is not, that population, or valuation, or any basis of apportionment,

is proper, rather the opposite, but that it approached as nearly as may be to what in the minds of these various Commissioners seemed to be a just apportionment.

Now, if the apportionment be distributed on the basis of population the amount assessed is charged to the city in a lump sum, turned over to the tax collector and collected, not per capita, but according to the amounts assessed against all the property of the city, and is, therefore, after all not a per capita tax, but resolves itself into a tax on property. As the assessed valuation in one city might be half that in another where the population is perhaps the same, the individuals in the town of lower valuation will be compelled to contribute twice as much towards the construction of the sewer as in the city with the larger valuation. To prove that this would work injustice we will take a concrete example. The population of Irvington and South Orange Village are about the same, while the valuation is $1,800,000 in the former town and $3,300,000 in the latter. On the basis of population the tax on the individual citizens of Irvington for this improvement would be double that of South Orange.

The *unreliability* of basing the apportionment on population is further illustrated by the exhibit of certain facts in connection with the estimated population of the cities and towns in the Metropolitan District figured for forty years in advance. In this estimate the population of Brighton was figured at 18,000 in 1930. But in 1895 the population of that town had already by its rapid growth reached 15,000, or nearly that estimated for it thirty years hence. The town of Brookline was estimated at 16,800 in 1930, while in 1895 its population was already 16,859, or more than that estimated for thirty years hence; while on the other hand certain other towns of the District have had no perceptible increase in population since 1890.

The method of basing the apportionment of cost upon the estimated population projected to the year 1930 was adopted by the municipalities of Orange, Bloomfield and Montclair, in sharing the expenses of their joint outlet sewer. This will be seen by the following letter received by me from the consulting engineer, Mr. Jas. Owen:

"Office of James Owen,
"Civil and Consulting Engineer,
"Newark, N. J., Oct. 10, 1898.

"ALEXANDER POTTER, ESQ.,
"New York City.

"Dear Sir:

"The basis of proportion of cost of the joint Montclair, Bloomfield, Orange Sewer was on an estimated population of the three towns thirty (30) years hence. The estimate of population was calculated from the second differences on the five (5) year census returns for the past twenty (20) years.

"Yours respectfully,

"JAMES OWEN."

On this basis the relative proportions paid by each municipality were approximately, Orange 49.5, Montclair 29.1, Bloomfield 21.4. The maintenance charges of this system are based upon the actual amount of sewage delivered.

DIFFERENT BASES COMBINED.

So much difficulty has been experienced by various Boards in securing a basis of apportionment which would work absolute justice to all parties, that attempts have been made by combining several of these different methods or bases of apportionment, acknowledged to be incorrect in themselves, to work out the inaccuracies in any one of them by taking the mean of all or several of them and thus secure a just apportionment.

This method was adopted by the Metropolitan Park Commission of Massachusetts, a commission appointed by the legislature of that State to secure and improve park areas in and around Boston for a radius of a number of miles. This Commission arrived at its apportionment of cost to the various cities and towns deriving advantage from this park system on a basis of one-third for population, one-third for valuation, and one-third for what was known as "special betterments." The Commission filed their report in 1895, but as no action has been taken or will be taken until 1900, the justice or injustice of this method has not been proved. The recommendation of this Commission in 1895 of a different method of apportionment from that adopted by the Metropolitan Sewerage Commission in 1891 indicates that that method to their minds cannot have proved entirely satisfac-

tory, and that there is a growing disposition to take into consideration the element of special betterments or benefits, in order to obtain a more equitable adjustment of such matters, rather than seeking after a simple rule merely on account of its simplicity and apart from its justice in a broader sense.

The Metropolitan Water Board, authorized by the legislature of Massachusetts in 1895, to construct a system of additional water supply for various towns in and around Boston, was another of these combinations which had to face the question of apportionment of cost, and the Legislature itself undertook to settle the question in the following manner: "After making a liberal provision for the payment by the City of Boston for a considerable portion of the work," the report goes on to say, "they (the Legislature) provided that all the expenses, both sinking fund, interest and maintenance, should be assessed on the remaining towns in the district, two-thirds according to population and one-third according to assessed valuation." These works are now under construction.

While this method of combining elements is to my mind more nearly accurate than that of valuation alone or of area alone or of population alone, it is still impossible to strictly follow this method in the determination of the problem which we have now in hand. To begin with the populations estimated by these Massachusetts Boards were arrived at by finding the increase in growth in population from previous census reports and a forecast made therefrom; but when we remember that several of the towns in our district are so new and of such recent origin that no census reports are obtainable, it is of course impossible to forecast from such reports what the population will be in a specific future. We therefore lack one of the most important factors upon which the conclusion of these eastern commissions was based.

In further support of this combination of elements of apportionment it is to be noted that several of the towns in the Metropolitan Sewerage District in a hearing before the Commission in 1895, after the method of valuation had been in vogue for five years, advanced the argument that the apportionment should be made upon the basis of one-third population, one-third area and one-third valuation, but these arguments did not affect the Commissioners in their second decision.

While the Metropolitan Sewerage Commission placed the ap-

portionment of the cost of construction upon the basis of valuation, the yearly expense of maintenance was based upon population. As the pumping expenses were so great as to form no little factor in the total amount to be annually contributed towards the Metropolitan Sewers, this latter apportionment proved just as difficult and vexed a question as that of apportioning the cost on the basis of valuation. But the simplicity of the system designed for your district eliminates any vexed discussion arising upon the question of maintenance, for our maintenance charges will be so small that any reasonably fair method must be accepted by all parties.

SYSTEM OF ACTUAL USE.

Before proceeding to a discussion of the final adjustment which I would recommend for your municipalities, I think it would be well to review in as concise a form as possible, those principles which we have gathered from the preceding discussion.

First, that approximation and not scientific exactness is the only result that we can hope to obtain or that has ever, in view of the demonstrated facts, been obtained by any method.

Second, that all individual methods are subject to insuperable difficulties.

Third, that the object to be attained is the securing of an apportionment which is as near as may be just, equitable and generally acceptable, which is reasonably stable and not subject to changes, but at the same time one which might not be overturned if carried into the courts.

Fourth, that the method should, if possible, be simple and easily understood, and established upon some just and equitable principle.

Fifth, that the method should be such as to need no revision if the apportionment is to be paid in one payment, as discrepancies and injustices appearing at a later time cannot be rectified.

Sixth, that the method should be based, not so much on "scientific demonstration, but on sound judgment and common sense."

Seventh, that the whole matter should be approached with the spirit of fairness and compromise if necessary.

Having these principles firmly fixed in our minds I will ask you if the true measure of apportionment should not be made upon a basis of the actual amount of *use* that each municipality makes of the sewer, and I will endeavor to show how this can be arranged with justice to all.

In the discussions before the various commissions appointed to apportion the cost of various enterprises such as our own, there has always been a notable fact, viz.: that while certain factions advocated valuation as a basis, and certain others population, and still others a combination of these and other elements, all agreed that in the last analysis the only true method of apportionment was upon a basis of the determination of the amount of sewage contributed by each town, but on account of the difficulties of such a determination, a practical application seems not to have been adopted, although the principle was admitted as fundamental.

I think you will agree with me that it matters not what the character or condition of a people in a community might be, if they use the sewers they should pay for that use in the measure in which they use them. In the various water supplies throughout the country, payment for water is not based upon the ability of people to pay, but upon the amount of water used by them. Should it not be the same with sewerage facilities?

It has been argued that an apportionment based upon quantity would tend to limit the use made of the sewers for the purpose of reducing the apportionment, but such an argument would scarcely hold in a community where even at the highest price possible sewer facilities will be prized as a necessity, convenience and luxury cheaply bought.

While it is a well-nigh unanswerable argument, and all will admit that measurement of quantity is the only final and true basis of apportionment, we have had heretofore no true method of determining how closely the methods of apportionment now in use approximated the true apportionment based on the *use* of sewers. Two years ago, however, the Chief Engineer of the Metropolitan Sewerage System began the actual gauging of the amount of sewage contributed by each community or municipality, and from such gauging it is possible to compare the apportionments based upon this principle of use and those based upon valuation. As these investigations have been conducted for so short a time they can only be considered as indicative, and their publication,

after they have been sufficiently tested to insure their accuracy, will doubtless have great weight in the future determination of apportionments. I have, however, given the results of these tests due weight in the consideration of these investigations, and from them much light has been thrown upon the question now under our consideration.

But before passing to the more detailed discussion of this proposition, it will be of interest to note in support of this method of apportionment by use, that it has been held by the courts of Massachusetts that the benefits for which a person has to pay for a sewer is the potentiality of drainage, or, in other words, the power or right he has in the sewer. And recalling to mind the spirit of the New Jersey decisions, we realize that this would be held equally in your own State.

Applying the principle mentioned to your own proposed system of sewerage, we must first note that this method of apportionment is ideally fitted for application in the present system, because we have no district where sewers already built for the accommodation of both storm water and sewage must be contended with; the vital question of imperfect construction of existing sewers is also eliminated. In the Metropolitan Sewerage System some of the towns are contributing to the main trunk sewer six (6) times the amount of water which should be the measure of their use, showing conclusively the enormous quantity of leakage, due to imperfectly constructed sewers or to systems formerly designed to accommodate storm water as well as sewage.

And this leads me to speak here of a subject too important to warrant omission. Sewers have been and can be made practically water tight under such conditions as will exist in the construction of your proposed sewers. This I contend will be absolutely necessary for the perfect and satisfactory working of your system, and too much care cannot be given by the Engineer to this end. If any community, either by neglect in taking the necessary precautions to secure good work, or for any other cause, fail to secure proper sewer construction, the other municipalities should not be compelled to suffer, and hence the justice of the limitations hereafter mentioned.

I now come to the enunciation of my proposition relative to your apportionment, and will then briefly endeavor to show its effect upon the various municipalities ultimately draining into this district.

BASIS OF APPORTIONMENT.

THE APPORTIONMENT RECOMMENDED WILL BE BASED UPON THE AMOUNT OF SEWAGE CONTRIBUTED BY THE POSSIBLE ULTIMATE POPULATION OF EACH DISTRICT OR MUNICIPALITY, DETERMINED BY A DETAILED EXAMINATION OF THE PHYSICAL CHARACTERISTICS AND ENVIRONMENTS OF THE VARIOUS MUNICIPALITIES, AND A STUDY OF THE WATER SUPPLY OF EACH.

FURTHER, THAT THE ABSOLUTE RIGHTS SHALL BE GRANTED EACH MUNICIPALITY OR DISTRICT TO OWN, CONTROL AND DISPOSE OF SO MUCH OF THE CUBICAL CAPACITY OF THE OUTLET SEWER AS IS PROPORTIONATE TO THE PERCENTAGE OF THE TOTAL COST OF THE JOINT OUTLET WHICH IS BORNE BY EACH MUNICIPALITY OR DISTRICT.

In order to obtain the ultimate possible population, access was had as far as possible to the existing and proposed subdivisions of the territory included within the limits of the district, to determne the intention of the owners of these tracts as to the use to which the land would be put. Land not so laid out was examined for the purpose of determining the possibility or probability of its use for dwelling-house lots, and the land adjacent to built up districts was examined with the purpose of ascertaining, as nearly as may be, the ultimate population of each district provided the class of house already existing should continue to be the style of house built and occupied. Of course such a calculation will give results far in excess of any population likely to be seen in the lifetime of any here, and as a matter of interest I might state that the resultant population was about double that estimated by me in designing the size of the main outlet sewer.

We can none of us forecast what may be the conditions fifty years from now, and should the district become the home of 106,380 people, the sewers designed will, by the construction of the tanks referred to in my report on the trunk sewer, be amply able to take care of such a population.

It may be of interest to note in this connection that I have had an opportunity to verify the statement I made in my previous report concerning the value of the tanks to regulate the flow of the sewage during the twenty-four hours of the day. In the main trunk sewer of the Charles River District of the Metro-

politan Sewerage System, continuous observations have been automatically recorded for over a year, these records showing the flow of the sewage at different hours of the day. Rain water was admitted to this sewer and it was also largely affected by ground water. After making the necessary allowance for ground water, and disregarding the effects of the storm water, I found that the difference between the maximum and minimum flow varied in the ratio of two to one. This sewer drained a territory comparable to our own in point of size.

It will be readily admitted that some of these districts will reach their ultimate population much in advance of others. Based upon the foregoing examination and computations I have determined the possible ultimate population of the municipalities to be as follows:

Irvington	18,000
Millburn	15,500
Newark	11,080
South Orange Township	14,000
South Orange Village	20,800
Vailsburg	11,500
West Orange Township	18,500
	106,380

WATER SUPPLY.

The question of water supply had also to be determined, as it is an important factor and has an important bearing upon the subject. Newark has a free and inexhaustible supply and the present per capita consumption over the entire city is 130 gallons per day per capita. As the district of that city included in this estimate is not likely to ever become a factory district, I have placed the per capita consumption at 100 gallons per day.

While Irvington's water supply is now taken by meter from the Newark water works, it will in all probability become more and more the home of certain small industries, which will tend to increase the water consumption. Irvington's rate has been placed at 80 gallons per capita per day.

Millburn's water supply is extremely limited, and as there does not seem to be any inexpensive method for increasing the water supply, they must per force put up with a smaller per

capita consumption than other towns, and their consumption I have placed at 60 gallons per capita per day.

This same also applies with equal force to the Village of South Orange and South Orange Township, except that in South Orange Village water for sewerage purposes will be more generally used, and consequently the consumption slightly greater. I have the consumption for these places estimated at 70 gallons per capita per day.

West Orange, on the other hand, has within its borders and within the borders of the territory for which they have asked to become obligated, several large factories which are large users of water, and consequently I was constrained to raise the per capita consumption of this city to 100 gallons per capita per day.

AWARD OF APPORTIONMENT.

With the ultimate population as given above, and with water supplies identical or somewhat approximating the figures given, the percentage of the main trunk sewer chargeable to each municipality is as follows:

Irvington	14.4
Millburn	11.2
Newark	13.3
South Orange Township	10.1
South Orange Village	17.6
Vailsburg	11.1
West Orange	22.2

The percentage of cost of each branch of the trunk sewer is determined by apportioning to each the percentage which their apportionment of the main trunk sewer bears to the total apportionment of all those towns or portions of those towns interested in a particular branch.

RIGHT TO USE OF SEWER.

In my enunciation of this method of apportionment, I stated that the different municipalities would be entitled to that proportion of the cubical capacity of the main outlet sewer which their percentage of the cost bears to the whole cost; that each municipality had the right to do with this capacity what it pleased, either to use it, sell it or otherwise dispose of it as best suited themselves. The reasons for this are obvious and just. One town

may desire to admit roof or rain water to a limited extent into the sewer. If they think this desirable they should not be compelled to secure the consent of neighboring communities to do so, for these communities may be opposed to such use being made of the sewers, but at the same time they can only use the sewers up to their own individual limit of capacity and hence cannot impose upon their neighbor, whether with its consent or without.

This allotment, moreover, might be found in the course of years to give one town more than it thinks it needs, or another town less than its need, and under this method of dealing with the problem an exchange could be effected and the financial operation transacted in a similar manner to the purchase or transfer of land.

That the measurement of the sewage flow can be made with facility and a check be had on the various municipalities, is evident when I call to your mind that the maintenance expense of the Orange, Montclair and Bloomfield System of sewers is apportioned upon the basis of results of the measurement of flow in their sewers. The justice of this method of apportionment should appeal to all, as it is certainly based upon the sound business principle of "value received." It is like buying shares in a joint stock company whose value will never drop below par, but which will have an ever increasing value and will be eagerly sought after.

The percentages given are based upon the assumption that all of the communities mentioned will consent to join issue in the construction of this outlet sewer. If they do not, then the percentages not disposed of can either be distributed pro rata among the other communities joining, or be taken up by that municipality which considers that a larger proportionate share of the capacity of the main trunk sewer would be a sound investment.

MAINTENANCE.

As the cost of construction is based on final use, so should the cost of maintenance be based upon the present use of the sewers. I can recommend no better way than that now practiced by the joint municipalities of Orange, Montclair and Bloomfield, to pay for maintenance in proportion to the actual measured quantities contributed by each municipality.

FLOW IN SEWERS.

The measurement of the quantity of flow in sewers is not a difficult matter to secure. It is obtained by placing a copper float in a special manhole in the sewer; to the copper float is attached a thin brass rod, the other end of which is connected up with a regular tide gauge with clock movement for automatic registration of the height of the sewage in the conduit. The cross section of the stream is thus continuously recorded, and as we know the grade of the sewer and consequently the velocity, we can thus readily find the amount of flow passing down the pipe.

CONCLUSION.

I have endeavored to lay before you all the facts, so far as time permitted, that I thought would naturally affect the settlement of this problem. I have endeavored to give you the results of my investigation without reservation, and to bring before you as far as possible all sides of the question as presented in the arguments before Commissions and before Legislatures and before Courts of Law upon every phase of the subject. I have spared no time, thought or pains to make my conclusions as I have presented them to you the most careful, thorough, exhaustive and absolute in my power, and I trust that this report will meet, not with your criticism, but with your hearty endorsement for fairness and justice, and that thus you will be able to accomplish a settlement upon a point which has proved heretofore the stumbling block of so many Commissions.

Respectfully submitted,

ALEXANDER POTTER.

REPORT OF JAMES OWEN, CONSULTING ENGINEER.

800 Broad St., Newark, N. J.,
June 15, 1899.

To the Special Committee on Joint Outlet Sewer.

Gentlemen:—

In accordance with the understanding with your committee that I should examine the report of Alexander Potter, C. E., on the proposed joint outlet sewer for the City of Newark, Township of West Orange, Village of South Orange, Township of South Orange, Borough of Vailsburg and Town of Irvington, I herewith submit the result of my investigation.

On March 4th, 1897, Mr. Rudolph Hering and myself submitted a report on the proposed plan of Mr. F. T. Crane, C. E., for the sewerage of the Village of South Orange. In that report certain principles were enunciated which I propose to adhere to with one or two exceptions, and it therefore seems needless for me to recapitulate these principles in this report. As a general rule the plan of Mr. Potter is in accord with those principles as laid down, and it is not therefore necessary for me to especially allude to that part of his plan, as they are entirely of professional interest and could not be properly appreciated by laymen.

I might allude incidentally to them and state that they are the principles of sewerage and tidal discharge.

In the report submitted by Mr. Hering and myself there was outlined an extension of the system to include practically all the drainage area that would use the outlet sewer. Mr. Potter in his report has amplified the original report of Mr. Crane to include almost all the drainage area of the territory and I do not think that it would be out of order for me to suggest that in the final execution of this work the whole of the drainage area be included in the system.

Taking Mr. Potter's report first as submitted and dividing the subject into the necessary classification for such work, I would suggest as follows:

1st, as to route. On careful examination of the route of the joint sewer, considering the joint sewer as beginning at the northerly line of South Orange Village and extending to Staten Island Sound, I see little matter for criticism, except on two points.

1st—as to the question of right of way, and 2nd—as to grade where the sewer runs close to the stream or river. I would therefore suggest that in the detail study of lines where rights of way have to be purchased, special attention be given to the desires of the property owners. If it is possible, and I think that in many cases it is possible, to lay the line of the proposed sewer in the center of a street, judiciously laid out to develop the property, it would be much less costly for the right of way and of great advantage to the individual property owner. This idea can be worked out more in detail where negotiations are entered into for the purchase of right of way, and would incidentally vary the location of the sewer, but would not materially affect its cost. With this suggestion incorporated as an adjunct to the general course of the sewer itself, I most heartily endorse the route as proposed by Mr. Potter, both in location between termini and in the terminus itself at Staten Island Sound.

In relation to the grade of the outlet as established by Mr. Potter, there is very little choice in the section between the Millburn junction and the outlet at Staten Island Sound and I would suggest no change at that part. On the section running from West Orange to the Millburn outlet, which runs parallel and close to the Rahway River, I would repeat my former recommendation that it would be wiser, safer and even cleaner to raise the grade above the level of the Rahway River, even if incidental to that raising it should be necessary to syphon the connection under the river itself.

It is possible in developing the local sewerage system for that territory to minimize the connections with the main and so reduce the trouble incidental to syphons to a very small factor. The cause for suggesting the raising the grade is the undoubted intrusion of ground water in the pipe, which should be prevented at all hazards. This point I will consider more fully later on.

The next point of consideration is the question of capacity, and in considering this point the following elements have to be taken as factors: First the population, second the discharge from such population, and third, ground and surface water.

Taking these up in order I will first consider the question of population.

It has generally been the custom to proportion sewers for

any community based on a term of thirty years. Mr. Potter, I understand in his report, has limited it to twenty. He, however, has been so liberal in his estimates for increased population that I am inclined to think that it will never be reached under thirty.

The character of the population in this drainage area varies somewhat, but on the whole is homogenous. In no part is there or probably will there be, a strictly urban or closely populated community. Taking them up in detail we now consider them in this light. The Township of West Orange has two classes of population: those residing on the slope of the mountain which I may call a rural suburban population, and those residing in the valley which is a thinly urban population. South Orange may be classified as purely suburban. Millburn the same only less densely populated. The Township of South Orange is more rural at the present time than any of the other municipalities. The Borough of Vailsburg and Town of Irvington are strictly suburban and promise to be so. And the portion of Newark proposed to be drained can also be considered purely suburban. In determining the size of sewer for this class of population two factors must be considered: the probable growth of population and the discharge from such population. In determining the increase of the communities under consideration, special consideration should be given to their growth in the past and influences that may arise for their growth in the future. I find that in this case it is impossible to take the census returns as given for a series of years and then determine the future increase.

West Orange and South Orange Village have and probably will have a normal growth, and Millburn probably may be included in this category. South Orange Township with its recent trolley developments, in my opinion, will grow faster than the other three. Vailsburg's growth may not be accurately determined by census returns, but in the last five years has increased in a greater ratio than any of the other communities. The Town of Irvington has had a steady growth, but in my opinion in the next few years will increase faster than heretofore. That part of the City of Newark included in this territory will in my opinion increase in as fast a ratio as Vailsburg and probably more.

As I stated before, Mr. Potter has been so wisely liberal in determining the probable increase that I do not wish on my part to suggest a reduction in any of his figures. I would, therefore,

endorse his supplementary statement of the seven municipalities, estimating the population as he suggests at 106,300 people in about the same proportion, excepting the Township of Millburn, which is slightly reduced.

The population of the towns and proportions recommended are as follows:

Town of Irvington	18,000	inhabitants	0.1692%
Township of Millburn	12,500	"	0.1176%
City of Newark	11,080	"	0.1041%
Township of South Orange	14,000	"	0.1317%
Village of South Orange	20,800	"	0.1953%
Borough of Vailsburg	11,500	"	0.1082%
Township of West Orange	18,500	"	0.1739%

It will be noted that these proportions do not vary very greatly from Mr. Potter's figures in his latest revised report. There is no question that in the economic tendencies of the times that the consumption of water will be reduced rather than increased, and this is being accomplished by the use of meters. I understand that at the present time meters are insisted upon by all consumers in West Orange and South Orange and probably will be in Irvington. The City of Newark is also now adopting the meter plan to reduce their consumption, and within ten years it is fair to assume that their use will be universal.

The consumption of water varies in cities from 60 gallons a day per head to 150 and more, where the use of water is unrestricted. In communities of like character to those under consideration in this report, the universal use of meters has brought the consumption down in some places to 30 gallons per head per day. It would therefore seem good judgment to take the usual suburban basis of 60 gallons per day as the amount for the basis of discharge for the whole district, consequently the table of proportions would not be changed from the table above.

Mr. Potter in his report assumes that the capacity of the sewer should be sufficient to carry this discharge off in twelve hours instead of twenty-four. In my experience in many years in supplying water for this character of population I think this is very liberal, as the maximum discharge is really extended over a period of eighteen hours, instead of twelve, and the long distance of the main outlet from the different towns contributing to the discharge would have a further tendency to equalize the flow.

There is, however, another factor in determining the capacity of the pipe for the discharge, which I find should be carefully considered, and this is the volume of surface and under ground waters that will find their way into the sewers. Mr. Potter enunciates the doctrine that it is perfectly practicable to build sewers water tight, and in the report of Mr. Hering and myself we allude strongly to the point that no ground water should be allowed to get into the pipe. After experience of a number of years I am obliged to state very emphatically that under the present system of manufacturing and laying the tile pipe drains it is impossible to make them tight. It is therefore absolutely necessary to include the probable amount of ground water that will enter the joint outlet sewer in determining its capacity.

From observations taken in the past three years I have come to the following general conclusions, that with a sewerage system partially underdrained in any given municipality the congestion of the pipe occurs ten years earlier than if no ground water got into the pipe. If there is no system of underdraining in the community the pipe sewer becomes congested twenty years earlier.

To make the idea more clear, if the sewer is designed for 4,000,000 gallons flow a day, at the end of thirty years, with partial underdrains, the 4,000,000 limit will be reached in twenty years, and if no underdrains are used at all the 4,000,000 gallon limit will be reached in ten years.

This condition of affairs only arises occasionally in extremely wet weather and is not an increasing factor. Applying this rule to the plans under consideration, it would therefore be wise to increase the capacity of the sewer at least 33 per cent. more than for the estimated discharge of sewage proper. This, of course, includes the imperative requirement that all mains shall be laid with an underdrain, and that all laterals laid in wet soil also have an underdrain with the proper and free discharge. A careful examination of the maps and grades show that it is feasible to have free discharge for underdrains at or near the limits of each municipality, and before the branch main connects with the main outlet. The benefit derived from the construction of underdrains is at any rate worth their additional cost in the advantage it gives for thoroughly underdraining all wet ground, and also giving an opportunity for complete drainage of cellars. I there-

fore recommend a thorough system of underdrainage in all the work contemplated.

As a summary of the conditions to be considered for estimating the size of the outlet, we have the population as defined by Mr. Potter in his last report and endorsed by me; a discharge of 60 gallons per head each day, which, based on an eighteen-hour delivery, would be equal to 90 gallons a day, and an addition of 33 per cent. to this amount for ground water. A population of 106,380 at 90 gallons a head a day would bring up the delivery to 9,574,200 gallons. Adding to this the estimated amount of 33 per cent. of ground water, would give a total rate of discharge of 12,765,600 gallons in twenty-four hours. To accomplish this it would be necessary to lay a thirty-three inch pipe from Union Avenue to Staten Island Sound, a twenty-seven inch pipe from Union Avenue to Millburn Avenue, and a twenty-inch pipe from Millburn Avenue to South Orange Avenue and a probable extension of the twenty-inch pipe towards the West Orange line, and also an increase of the sizes of the pipes in the Irvington and Vailsburg Branch.

The increase of cost of the several sizes of pipe over Mr. Potter's estimate would, of course, not be in direct proportion to the capacity of the pipe, and in tunnel work would be but little more than the extra cost of the pipe itself.

The following tables give first the total estimated cost of the enlarged drain, second the proportional share of each section to be paid by each municipality, and third, the total amount that each municipality will have to pay.

Estimate of Cost of Sewer on the basis of increased size of pipe and underdrains:

Main Outlet—		
Total length	33,200 ft.	
Original estimate	$135,000.00	
Add for extra size 60¢ per ft.	19,920.00	
		$154,920.00
West Branch, Section 1—		
Total length	13,735 ft.	
Original estimate	$ 54,000.00	
Add for extra size of pipe 40¢ per ft.	5,494.00	
4000 ft. underdrain at 20¢	800.00	
		60,294.00

West Branch, Section 2—			
Total length		9,400 ft.	
Original estimate		$ 14,600.00	
Add for extra size 5,000 ft. at 20¢		1,000.00	
9,400 ft. underdrains		1,880.00	
			16,480.00
West Branch, Section 3—			
Total length		10,500 ft.	
Original estimate		$ 16,000.00	
10,500 ft. underdrain at 20¢		2,100.00	
			18,100.00
Irvington, Vailsburg, Newark Branches—			
Total length		47,700 ft.	
Original estimate		$ 48,129.41	
Add for extra size pipe at 15¢		6,105.00	
20,000 ft. underdrains at 20¢		4,000.00	
			58,234.41
Total			$308,028.41

The proportional cost to each municipality is as follows:

Main Outlet: Union Avenue to Staten Island Sound—			
Irvington	16.92	$ 26,212.98	
Millburn	11.76	18,218.95	
Newark	10.41	16,127.49	
South Orange Township	13.17	20,402.69	
South Orange Village	19.53	30,256.18	
Vailsburg	10.82	16,760.61	
West Orange	17.39	26,941.10	
			$154,920.00
West Branch, First Division—			
South Orange Village	31.72	$ 19,125.21	
South Orange Township	16.70	10,069.11	
Millburn	20.75	12,510.96	
West Orange	30.83	10,588.72	
			60,294.00
West Branch, Second Division—			
South Orange Village	43.70	7,201.76	
West Orange Township	42.55	7,004.00	
South Orange Township	13.80	2,274.24	
			16,480.00

Total:

West Branch, Third Division—			
South Orange Village	44.70	8,090.70	
West Orange Township	55.30	10,009.30	
			18,100.00
Total:			
Irvington Extension—			
Newark	23.93	13,935.49	
Irvington	38.81	22,600.77	
Vailsburg	24.84	14,465.42	
South Orange Township	8.64	5,031.45	
South Orange Village	3.78	2,201.28	
			58,234.41
			$308,028.41
Total cost to each municipality:			
Irvington—			
Main Outlet		$ 26,212.98	
Irvington Extension		26,600.77	
			$ 48,813.75
Vailsburg—			
Main Outlet		$ 16,760.61	
Irvington Extension		14,465.41	
			31,226.03
Newark—			
Main Outlet		$ 16,127.49	
Irvington Extension		13,935.49	
			30,062.98
South Orange Township—			
Main Outlet		$ 20,402.69	
West Branch, Section 1		10,069.11	
" " " 2		2,274.24	
Irvington Extension		5,031.45	
			37,777.49
Millburn—			
Main Outlet		$ 18,218.95	
West Branch		12,510.96	
			30,729.91

South Orange Village—		
Main Outlet	$ 30,256.18	
West Branch, Section 1	19,125.21	
" " " 2	7,201.76	
" " " 3	8,090.70	
Irvington Extension	2,201.28	
		66,875.13
West Orange Township—		
Main Outlet	$ 26,941.10	
West Branch, Section 1	18,388.72	
" " " 2	7,004.00	
" " " 3	10,009.30	
		62,543.12
		$308,028.41

It will be seen on comparing the tables of Mr. Potter with mine that there is no radical variation except that due to the increase in the estimates, and in making the suggested increase I do so with a good deal of reluctance, but the experience that other municipalities have had in the last few years with pipe sewers congested with underground water forces me to the conclusion that in a proper engineering structure such an experience should not be disregarded. A careful examination of Mr. Potter's estimates of the cost of the work as he proposes, shows them to be correct and liberal and I have no doubt that the work could be properly completed at the prices named.

I would further suggest in the construction of the work the abolition of perforated manhole heads as they are a great source of care in future maintenance and allow a large amount of surface water to flow into the sewer and incidentally a large amount of street washings which have to be continually removed. The proper circulation of air in the pipes can be secured by other means and at no great expense.

As my function in this matter was merely to examine into the purely engineering problems of this outlet sewer it may not be out of order, however, for me to allude to one point which I think of great importance, and that is the inclusion of all territory within the drainage area for the purpose of sewerage. There are two territories not included in the report, viz., the City of Summit and a small portion of the Township of East Orange.

The authorities of Summit are anxious for the privilege of using and paying for their share in the sewer, and East Orange is also considering the question, and they should both be included in the scheme. This would lessen the cost to the others.

This, I believe, covers all the points necessary for me to allude to.

Yours respectfully,

JAS. OWEN,
Con. Eng.

OFFICERS OF THE JOINT MEETING DURING THE CONSTRUCTION PERIOD.

CHAIRMEN.

Edward D. Tuttle, Irvington,	1901
Wm. L. Glorieux, Irvington	1901-1904

SECRETARY.

Wm. Rollinson, West Orange	1901-1904

TREASURER.

Francis S. Phraner, Summit	1901-1904

COUNSEL.

Adrian Riker, Newark	1901-1904

ENGINEER.

Alexander Potter, New York	1901-1904

MEMBERS OF EXECUTIVE COMMITTEE.

Newark,	C. V. Baumann,	1901-1904
Irvington,	Edward D. Tuttle,	1901-1902
	Warren D. Frey,	1903-1904
Millburn,	Chas. O. Lyon,	1901
	Charles W. Cox,	1902
	Wellington Campbell,	1903-1904
Summit,	A. A. Buckley,	1901
	George C. Hand,	1902
	Chester N. Jones,	1903-1904
South Orange,	Francis Speir, Jr.,	1901-1904
West Orange,	Thomas Cunningham,	1901
	Edward Glazier,	1902
	John J. Kenney,	1903-1904
Vailsburg,	Andrew Eschenfelder,	1901-1902-1904
	John F. Zimmerman,	1902-1903

GENERAL MAP
OF
JOINT OUTLET SEWER
FOR
CERTAIN MUNICIPALITIES
IN
ESSEX AND UNION COUNTIES,
NEW JERSEY.

ALEXANDER POTTER, CHIEF ENGINEER.
90 CHURCH STREET
NEW YORK CITY
1910

SCALE

Constructed Joint Outlet Sewer shown thus

Constructed lateral sewers shown thus

MADISON
MORRISTOWN
CHATHAM
SUMMIT SEWAGE PUMPING STATION
SUMMIT
MILLBURN TOWNSHIP
SHORT HILLS
CHEAPSIDE
NORTHFIELD
LIVINGSTON
ROSELAND
PLEASANTDALE
ESSEX
SPRINGFIELD
MILLBURN
WYOMING
MAPLEWOOD
SOUTH ORANGE
SOUTH ORANGE TOWNSHIP
SECTION 4
SECTION 3
SECTION 2
SECTION 1
HILTON
IRVINGTON
WEST ORANGE TOWNSHIP
LLEWELLYN PARK
MONTCLAIR
EAST ORANGE
ORANGE
VAILSBURGH
NEWARK
UNION
NEW ORANGE
GARWOOD
CRANFORD
LYONS FARMS
ROSELLE PARK
ELMORA
ROSELLE
LINDEN
ELIZABETH
ELIZABETHPORT
NEWARK BAY
SOUND
STATEN ISLAND
SHOOTER'S ISL.
BERGEN POINT
NORTH SHORE
PORT RICHMOND
LEHIGH VALLEY RAILROAD
CENTRAL RAILROAD OF NEW JERSEY
BALTIMORE & OHIO RAILROAD
PENNSYLVANIA RAILROAD
NEW YORK, SUSQUEHANNA & WESTERN RAILROAD
NEW YORK & LONG BRANCH RAILROAD
DELAWARE, LACKAWANNA & WESTERN RAILROAD
NEW JERSEY RAILROAD
ERIE RAILROAD
PASSAIC RIVER
RAHWAY RIVER
ROUTE 1
ROUTE 7
ROUTE 21
ROUTE 22
ROUTE 24
ROUTE 29
ROUTE 30
ROUTE 31
ROUTE 35
ROUTE 36
ROUTE 38
ROUTE 39
ROUTE 42
ROUTE 43
ROUTE 44
ROUTE 45
ROUTE 46
ROUTE 47
ROUTE 48
ROUTE 49
ROUTE 50
ROUTE 51
ROUTE 52
ROUTE 53
ROUTE 54
ROUTE 55
ROUTE 56
ROUTE 57
ROUTE 58
ROUTE 59
ROUTE 60
ROUTE 61
ROUTE 62
ROUTE 63
ROUTE 64
ROUTE 65
ROUTE 66
ROUTE 67
ROUTE 68
ROUTE 69
ROUTE 70
ROUTE 71
ROUTE 72
ROUTE 73
ROUTE 74
ROUTE 75
ROUTE 76
ROUTE 77
ROUTE 78
ROUTE 79
ROUTE 80
ROUTE 81
ROUTE 82
ROUTE 83
ROUTE 84
ROUTE 85
ROUTE 86
ROUTE 87
ROUTE 88
ROUTE 89
ROUTE 90
ROUTE 91
ROUTE 92
ROUTE 93
ROUTE 94
ROUTE 95
ROUTE 96
ROUTE 97
ROUTE 98
ROUTE 99
ROUTE 100
ROUTE 101
ROUTE 102
ROUTE 103
ROUTE 104
ROUTE 105
ROUTE 106
ROUTE 107
ROUTE 108
ROUTE 109
ROUTE 110
ROUTE 111
ROUTE 112
ROUTE 113
ROUTE 114
ROUTE 115
ROUTE 116
ROUTE 117
ROUTE 118
ROUTE 119
ROUTE 120
ROUTE 121
ROUTE 122
ROUTE 123
ROUTE 124
ROUTE 125
ROUTE 126
ROUTE 127
ROUTE 128
ROUTE 129
ROUTE 130
ROUTE 131
ROUTE 132
ROUTE 133
ROUTE 134
ROUTE 135
ROUTE 136
ROUTE 137
ROUTE 138
ROUTE 139
ROUTE 140
ROUTE 141
ROUTE 142
ROUTE 143
ROUTE 144
ROUTE 145
ROUTE 146
ROUTE 147
ROUTE 148
ROUTE 149
ROUTE 150
ROUTE 151
ROUTE 152
ROUTE 153
ROUTE 154
ROUTE 155
ROUTE 156
ROUTE 157
ROUTE 158
ROUTE 159
ROUTE 160
ROUTE 161
ROUTE 162
ROUTE 163
ROUTE 164
ROUTE 165
ROUTE 166
ROUTE 167
ROUTE 168
ROUTE 169
ROUTE 170
ROUTE 171
ROUTE 172
ROUTE 173
ROUTE 174
ROUTE 175
ROUTE 176
ROUTE 177
ROUTE 178
ROUTE 179
ROUTE 180
ROUTE 181
ROUTE 182
ROUTE 183
ROUTE 184
ROUTE 185
ROUTE 186
ROUTE 187
ROUTE 188
ROUTE 189
ROUTE 190
ROUTE 191
ROUTE 192
ROUTE 193
ROUTE 194
ROUTE 195
ROUTE 196
ROUTE 197
ROUTE 198
ROUTE 199
ROUTE 200
ROUTE 201
ROUTE 202
ROUTE 203
ROUTE 204
ROUTE 205
ROUTE 206
ROUTE 207
ROUTE 208
ROUTE 209
ROUTE 210
ROUTE 211
ROUTE 212
ROUTE 213
ROUTE 214
ROUTE 215
ROUTE 216
ROUTE 217
ROUTE 218
ROUTE 219
ROUTE 220
ROUTE 221
ROUTE 222
ROUTE 223
ROUTE 224
ROUTE 225
ROUTE 226
ROUTE 227
ROUTE 228
ROUTE 229
ROUTE 230
ROUTE 231
ROUTE 232
ROUTE 233
ROUTE 234
ROUTE 235
ROUTE 236
ROUTE 237
ROUTE 238
ROUTE 239
ROUTE 240
ROUTE 241
ROUTE 242
ROUTE 243
ROUTE 244
ROUTE 245
ROUTE 246
ROUTE 247
ROUTE 248
ROUTE 249
ROUTE 250
ROUTE 251
ROUTE 252
ROUTE 253
ROUTE 254
ROUTE 255
ROUTE 256
ROUTE 257
ROUTE 258
ROUTE 259
ROUTE 260
ROUTE 261
ROUTE 262
ROUTE 263
ROUTE 264
ROUTE 265
ROUTE 266
ROUTE 267
ROUTE 268
ROUTE 269
ROUTE 270
ROUTE 271
ROUTE 272
ROUTE 273
ROUTE 274
ROUTE 275
ROUTE 276
ROUTE 277
ROUTE 278
ROUTE 279
ROUTE 280
ROUTE 281
ROUTE 282
ROUTE 283
ROUTE 284
ROUTE 285
ROUTE 286
ROUTE 287
ROUTE 288
ROUTE 289
ROUTE 290
ROUTE 291
ROUTE 292
ROUTE 293
ROUTE 294
ROUTE 295
ROUTE 296
ROUTE 297
ROUTE 298
ROUTE 299
ROUTE 300
ROUTE 301
ROUTE 302
ROUTE 303
ROUTE 304
ROUTE 305
ROUTE 306
ROUTE 307
ROUTE 308
ROUTE 309
ROUTE 310
ROUTE 311
ROUTE 312
ROUTE 313
ROUTE 314
ROUTE 315
ROUTE 316
ROUTE 317
ROUTE 318
ROUTE 319
ROUTE 320
ROUTE 321
ROUTE 322
ROUTE 323
ROUTE 324
ROUTE 325
ROUTE 326
ROUTE 327
ROUTE 328
ROUTE 329
ROUTE 330
ROUTE 331
ROUTE 332
ROUTE 333
ROUTE 334
ROUTE 335
ROUTE 336
ROUTE 337
ROUTE 338
ROUTE 339
ROUTE 340
ROUTE 341
ROUTE 342
ROUTE 343
ROUTE 344
ROUTE 345
ROUTE 346
ROUTE 347
ROUTE 348
ROUTE 349
ROUTE 350
ROUTE 351
ROUTE 352
ROUTE 353
ROUTE 354
ROUTE 355
ROUTE 356
ROUTE 357
ROUTE 358
ROUTE 359
ROUTE 360
ROUTE 361
ROUTE 362
ROUTE 363
ROUTE 364
ROUTE 365
ROUTE 366
ROUTE 367
ROUTE 368
ROUTE 369
ROUTE 370
ROUTE 371
ROUTE 372
ROUTE 373
ROUTE 374
ROUTE 375
ROUTE 376
ROUTE 377
ROUTE 378
ROUTE 379
ROUTE 380
ROUTE 381
ROUTE 382
ROUTE 383
ROUTE 384
ROUTE 385
ROUTE 386
ROUTE 387
ROUTE 388
ROUTE 389
ROUTE 390
ROUTE 391
ROUTE 392
ROUTE 393
ROUTE 394
ROUTE 395
ROUTE 396
ROUTE 397
ROUTE 398
ROUTE 399
ROUTE 400
ROUTE 401
ROUTE 402
ROUTE 403
ROUTE 404
ROUTE 405
ROUTE 406
ROUTE 407
ROUTE 408
ROUTE 409
ROUTE 410
ROUTE 411
ROUTE 412
ROUTE 413
ROUTE 414
ROUTE 415
ROUTE 416
ROUTE 417
ROUTE 418
ROUTE 419
ROUTE 420
ROUTE 421
ROUTE 422
ROUTE 423
ROUTE 424
ROUTE 425
ROUTE 426
ROUTE 427
ROUTE 428
ROUTE 429
ROUTE 430
ROUTE 431
ROUTE 432
ROUTE 433
ROUTE 434
ROUTE 435
ROUTE 436
ROUTE 437
ROUTE 438
ROUTE 439
ROUTE 440
ROUTE 441
ROUTE 442
ROUTE 443
ROUTE 444
ROUTE 445
ROUTE 446
ROUTE 447
ROUTE 448
ROUTE 449
ROUTE 450
ROUTE 451
ROUTE 452
ROUTE 453
ROUTE 454
ROUTE 455
ROUTE 456
ROUTE 457
ROUTE 458
ROUTE 459
ROUTE 460
ROUTE 461
ROUTE 462
ROUTE 463
ROUTE 464
ROUTE 465
ROUTE 466
ROUTE 467
ROUTE 468
ROUTE 469
ROUTE 470
ROUTE 471
ROUTE 472
ROUTE 473
ROUTE 474
ROUTE 475
ROUTE 476
ROUTE 477
ROUTE 478
ROUTE 479
ROUTE 480
ROUTE 481
ROUTE 482
ROUTE 483
ROUTE 484
ROUTE 485
ROUTE 486
ROUTE 487
ROUTE 488
ROUTE 489
ROUTE 490
ROUTE 491
ROUTE 492
ROUTE 493
ROUTE 494
ROUTE 495
ROUTE 496
ROUTE 497
ROUTE 498
ROUTE 499
ROUTE 500
ROUTE 501
ROUTE 502
ROUTE 503
ROUTE 504
ROUTE 505
ROUTE 506
ROUTE 507
ROUTE 508
ROUTE 509
ROUTE 510
ROUTE 511
ROUTE 512
ROUTE 513
ROUTE 514
ROUTE 515
ROUTE 516
ROUTE 517
ROUTE 518
ROUTE 519
ROUTE 520
ROUTE 521
ROUTE 522
ROUTE 523
ROUTE 524
ROUTE 525
ROUTE 526
ROUTE 527
ROUTE 528
ROUTE 529
ROUTE 530
ROUTE 531
ROUTE 532
ROUTE 533
ROUTE 534
ROUTE 535
ROUTE 536
ROUTE 537
ROUTE 538
ROUTE 539
ROUTE 540
ROUTE 541
ROUTE 542
ROUTE 543
ROUTE 544
ROUTE 545
ROUTE 546
ROUTE 547
ROUTE 548
ROUTE 549
ROUTE 550
ROUTE 551
ROUTE 552
ROUTE 553
ROUTE 554
ROUTE 555
ROUTE 556
ROUTE 557
ROUTE 558
ROUTE 559
ROUTE 560
ROUTE 561
ROUTE 562
ROUTE 563
ROUTE 564
ROUTE 565
ROUTE 566
ROUTE 567
ROUTE 568
ROUTE 569
ROUTE 570
ROUTE 571
ROUTE 572
ROUTE 573
ROUTE 574
ROUTE 575
ROUTE 576
ROUTE 577
ROUTE 578
ROUTE 579
ROUTE 580
ROUTE 581
ROUTE 582
ROUTE 583
ROUTE 584
ROUTE 585
ROUTE 586
ROUTE 587
ROUTE 588
ROUTE 589
ROUTE 590
ROUTE 591
ROUTE 592
ROUTE 593
ROUTE 594
ROUTE 595
ROUTE 596
ROUTE 597
ROUTE 598
ROUTE 599
ROUTE 600
ROUTE 601
ROUTE 602
ROUTE 603
ROUTE 604
ROUTE 605
ROUTE 606
ROUTE 607
ROUTE 608
ROUTE 609
ROUTE 610
ROUTE 611
ROUTE 612
ROUTE 613
ROUTE 614
ROUTE 615
ROUTE 616
ROUTE 617
ROUTE 618
ROUTE 619
ROUTE 620
ROUTE 621
ROUTE 622
ROUTE 623
ROUTE 624
ROUTE 625
ROUTE 626
ROUTE 627
ROUTE 628
ROUTE 629
ROUTE 630
ROUTE 631
ROUTE 632
ROUTE 633
ROUTE 634
ROUTE 635
ROUTE 636
ROUTE 637
ROUTE 638
ROUTE 639
ROUTE 640
ROUTE 641
ROUTE 642
ROUTE 643
ROUTE 644
ROUTE 645
ROUTE 646
ROUTE 647
ROUTE 648
ROUTE 649
ROUTE 650
ROUTE 651
ROUTE 652
ROUTE 653
ROUTE 654
ROUTE 655
ROUTE 656
ROUTE 657
ROUTE 658
ROUTE 659
ROUTE 660
ROUTE 661
ROUTE 662
ROUTE 663
ROUTE 664
ROUTE 665
ROUTE 666
ROUTE 667
ROUTE 668
ROUTE 669
ROUTE 670
ROUTE 671
ROUTE 672
ROUTE 673
ROUTE 674
ROUTE 675
ROUTE 676
ROUTE 677
ROUTE 678
ROUTE 679
ROUTE 680
ROUTE 681
ROUTE 682
ROUTE 683
ROUTE 684
ROUTE 685
ROUTE 686
ROUTE 687
ROUTE 688
ROUTE 689
ROUTE 690
ROUTE 691
ROUTE 692
ROUTE 693
ROUTE 694
ROUTE 695
ROUTE 696
ROUTE 697
ROUTE 698
ROUTE 699
ROUTE 700
ROUTE 701
ROUTE 702
ROUTE 703
ROUTE 704
ROUTE 705
ROUTE 706
ROUTE 707
ROUTE 708
ROUTE 709
ROUTE 710
ROUTE 711
ROUTE 712
ROUTE 713
ROUTE 714
ROUTE 715
ROUTE 716
ROUTE 717
ROUTE 718
ROUTE 719
ROUTE 720
ROUTE 721
ROUTE 722
ROUTE 723
ROUTE 724
ROUTE 725
ROUTE 726
ROUTE 727
ROUTE 728
ROUTE 729
ROUTE 730
ROUTE 731
ROUTE 732
ROUTE 733
ROUTE 734
ROUTE 735
ROUTE 736
ROUTE 737
ROUTE 738
ROUTE 739
ROUTE 740
ROUTE 741
ROUTE 742
ROUTE 743
ROUTE 744
ROUTE 745
ROUTE 746
ROUTE 747
ROUTE 748
ROUTE 749
ROUTE 750
ROUTE 751
ROUTE 752
ROUTE 753
ROUTE 754
ROUTE 755
ROUTE 756
ROUTE 757
ROUTE 758
ROUTE 759
ROUTE 760
ROUTE 761
ROUTE 762
ROUTE 763
ROUTE 764
ROUTE 765
ROUTE 766
ROUTE 767
ROUTE 768
ROUTE 769
ROUTE 770
ROUTE 771
ROUTE 772
ROUTE 773
ROUTE 774
ROUTE 775
ROUTE 776
ROUTE 777
ROUTE 778
ROUTE 779
ROUTE 780
ROUTE 781
ROUTE 782
ROUTE 783
ROUTE 784
ROUTE 785
ROUTE 786
ROUTE 787
ROUTE 788
ROUTE 789
ROUTE 790
ROUTE 791
ROUTE 792
ROUTE 793
ROUTE 794
ROUTE 795
ROUTE 796
ROUTE 797
ROUTE 798
ROUTE 799
ROUTE 800
ROUTE 801
ROUTE 802
ROUTE 803
ROUTE 804
ROUTE 805
ROUTE 806
ROUTE 807
ROUTE 808
ROUTE 809
ROUTE 810
ROUTE 811
ROUTE 812
ROUTE 813
ROUTE 814
ROUTE 815
ROUTE 816
ROUTE 817
ROUTE 818
ROUTE 819
ROUTE 820
ROUTE 821
ROUTE 822
ROUTE 823
ROUTE 824
ROUTE 825
ROUTE 826
ROUTE 827
ROUTE 828
ROUTE 829
ROUTE 830
ROUTE 831
ROUTE 832
ROUTE 833
ROUTE 834
ROUTE 835
ROUTE 836
ROUTE 837
ROUTE 838
ROUTE 839
ROUTE 840
ROUTE 841
ROUTE 842
ROUTE 843
ROUTE 844
ROUTE 845
ROUTE 846
ROUTE 847
ROUTE 848
ROUTE 849
ROUTE 850
ROUTE 851
ROUTE 852
ROUTE 853
ROUTE 854
ROUTE 855
ROUTE 856
ROUTE 857
ROUTE 858
ROUTE 859
ROUTE 860
ROUTE 861
ROUTE 862
ROUTE 863
ROUTE 864
ROUTE 865
ROUTE 866
ROUTE 867
ROUTE 868
ROUTE 869
ROUTE 870
ROUTE 871
ROUTE 872
ROUTE 873
ROUTE 874
ROUTE 875
ROUTE 876
ROUTE 877
ROUTE 878
ROUTE 879
ROUTE 880
ROUTE 881
ROUTE 882
ROUTE 883
ROUTE 884
ROUTE 885
ROUTE 886
ROUTE 887
ROUTE 888
ROUTE 889
ROUTE 890
ROUTE 891
ROUTE 892
ROUTE 893
ROUTE 894
ROUTE 895
ROUTE 896
ROUTE 897
ROUTE 898
ROUTE 899
ROUTE 900
ROUTE 901
ROUTE 902
ROUTE 903
ROUTE 904
ROUTE 905
ROUTE 906
ROUTE 907
ROUTE 908
ROUTE 909
ROUTE 910
ROUTE 911
ROUTE 912
ROUTE 913
ROUTE 914
ROUTE 915
ROUTE 916
ROUTE 917
ROUTE 918
ROUTE 919
ROUTE 920
ROUTE 921
ROUTE 922
ROUTE 923
ROUTE 924
ROUTE 925
ROUTE 926
ROUTE 927
ROUTE 928
ROUTE 929
ROUTE 930
ROUTE 931
ROUTE 932
ROUTE 933
ROUTE 934
ROUTE 935
ROUTE 936
ROUTE 937
ROUTE 938
ROUTE 939
ROUTE 940
ROUTE 941
ROUTE 942
ROUTE 943
ROUTE 944
ROUTE 945
ROUTE 946
ROUTE 947
ROUTE 948
ROUTE 949
ROUTE 950
ROUTE 951
ROUTE 952
ROUTE 953
ROUTE 954
ROUTE 955
ROUTE 956
ROUTE 957
ROUTE 958
ROUTE 959
ROUTE 960
ROUTE 961
ROUTE 962
ROUTE 963
ROUTE 964
ROUTE 965
ROUTE 966
ROUTE 967
ROUTE 968
ROUTE 969
ROUTE 970
ROUTE 971
ROUTE 972
ROUTE 973
ROUTE 974
ROUTE 975
ROUTE 976
ROUTE 977
ROUTE 978
ROUTE 979
ROUTE 980
ROUTE 981
ROUTE 982
ROUTE 983
ROUTE 984
ROUTE 985
ROUTE 986
ROUTE 987
ROUTE 988
ROUTE 989
ROUTE 990
ROUTE 991
ROUTE 992
ROUTE 993
ROUTE 994
ROUTE 995
ROUTE 996
ROUTE 997
ROUTE 998
ROUTE 999
ROUTE 1000

INDEX OF MEETINGS.

Date.	Page.
May, 1898	4
September 29, 1898	5
October 25, 1898	6
May 5, 1899	8
June 16, 1899	9
September 14, 1899	12
September 27, 1899	13
December 20, 1899	13
March 8, 1900	16
June 21, 1900	16
August 20, 1900	19
December 4, 1900	21
March 27, 1901	25
April 10, 1901	30
April 24, 1901	33
May 14, 1901	39
June 13, 1901	40
July 22, 1901	43
August 8, 1901	45
August 15, 1901	45
August 26, 1901	48
August 27, 1901	49
September 12, 1901	55
October 10, 1901	58
November 14, 1901	61
November 26, 1901	65
December 5, 1901	67
December 12, 1901	71
January 9, 1902	72
January 16, 1902	75
February 13, 1902	84
February 20, 1902	89

Date.	Page.
March 13, 1902	91
March 27, 1902	94
April 10, 1902	99
April 24, 1902	105
May 8, 1902	115
May 15, 1902	118
May 22, 1902	120
May 29, 1902	124
June 5, 1902	126
June 26, 1902	131
July 10, 1902	136
July 24, 1902	143
August 7, 1902	144
August 21, 1902	157
September 4, 1902	162
September 25, 1902	169
October 3, 1902	175
October 9, 1902	178
October 16, 1902	184
November 6, 1902	187
December 4, 1902	193
December 9, 1902	203
January 8, 1903	204
February 5, 1903	212
February 10, 1903	221
March 5, 1903	224
April 9, 1903	238
April 23, 1903	251
May 7, 1903	254
June 4, 1903	260a
July 9, 1903	262
July 17, 1903	273
August 6, 1903	275
September 8, 1903	287
September 10, 1903	296
September 22, 1903	296
October 8, 1903	300
October 15, 1903	309

Date.	Page.
November 5, 1903	309
December 10, 1903	322
December 23, 1903	330
January 7, 1904	332
January 26, 1904	337
February 4, 1904	339
March 10, 1904	343
April 11, 1904	349
May 5, 1904	353
June 3, 1904	358
June 16, 1904	364

INDEX.

Adams, William B., employed to obtain options, 63; bill for work on private rights of way, 74; retained as bookkeeper for Joint Meeting, 262.

Advertisement for proposals for building sewer in Elizabeth ordered, 69, 70:
proposals Section 2, ordered, 94, 95;
proposals Section 3, ordered, 137;
proposals for Section 4, ordered, 111; readvertisement ordered, 126, 162, 163;
proposals for Section 5, ordered, 110;
proposals Section 6, alternate bids provided for, 172;
ordered printed, 174.

Affidavit to accompany bills, 70.

Agents on private rights of way to report weekly, 59-60.

Agreement, proposed, between Joint Sewerage Commission and Elizabeth, 49-52;
adoption of, 53.

Allen, Morris, right of way, option ratified, 103.

Allen, Morris, estate, right of way along property of, 147, 148; through property of, 148; payment ordered, 197.

Allen, William, expert fee in Potter estate case, 224.

American Society of Civil Engineers and Engineer's bond, 36; communication regarding, 40.

Applications for permits to connect with Joint Sewer, rules regarding, 282; blanks ordered printed, 329.

Apportionment of cost, report to be made, 5; report by Engineer, 6; explained, 8;
approved by all municipalities except Vailsburg, 12; revision ordered, 17; table showing apportionment distributing South Orange Township's apportionment, 17, 18; reapportionment necessary on account of Summit, 19; table showing second reapportionment, 20, 21; Section 6, rearranged, 367.
Report on, Appendix.

Arthur, Frank D., right of way, release by Hubert Pierson, lessee, 131.

Arthur, George D., right of way, land needed, 171; condemnation directed, 185.

Arthur, George D., estate, right of way, needed, 213; condemnation directed, 214, 224; right of way, payment ordered, 240.

Aspden, George E. W., appointed inspector, 258.

Assessed valuation of separate parcels of land submitted, 66.

Assessment for benefits referred to committee, 12; committee appointed, 13; report, 13-14.

Assessment, municipalities for Main Trunk Sewer, X A, 36, 64, 88, 95, 127, 139, 153, 164, 182, 191, 221, 237, 250, 259, 261h, 272, 281.

Assessment, municipalities, for East Branch, A Q T, 139, 154, 164, 182, 204, 237, 250, 259, 261h, 272, 281, 295, 307, 321, 337.

Assessment, municipalities, for First Division, West Branch, A B, 164, 182, 191, 204, 221, 237, 250, 261h, 281, 296, 308, 321, 328, 337, 342, 348, 357.

Assessment, municipalities, for Second and Third Divisions, West Branch, B K L, 164, 182, 191, 204, 237, 250, 261h, 272, 281, 296, 307, 321, 337.

Assessment, municipalities, for Millburn-Summit Division, B I, 191, 204, 221, 250, 261h, 281, 296, 321.

Assistant Counsel, J. Randolph Woodruff appointed, 34; retainer voted, 41.

Attendance of Executive Committee at meetings, payment for, 373.

Audit of Treasurer's books ordered, 373.

Auditing Committee appointed, 65, 375.

Auditing Committee, Mr. Glazier appointed on, 73; Mr. Baumann appointed on, 97.

Baker, Thos. C., to secure options on rights of way, 13; engaged, 14, 62, 63; bill for work on options, 66.

Baldwin, Herbert, right of way, payment ordered, 114.

Barrett, Timothy, appointed inspector, 240; bill ordered paid, 310.

Batchelder, Moses, appointed inspector, 190.

Batchelder, William A., right of way, Mr. Eschenfelder to take up, 183; could not be found, 187; right of way payment by Secretary ratified, 205.

Batt, Ludwig, right of way, proposition from, 103, 104; payment ordered, 111, 123;
proposal for work, Section 4, 173.

Batt & Martin, proposal for work, Section 4, 122; rejected, 126; new bids, 133.

Baumann, Mr., appointed to auditing committee, 97.

Bayway right of way, committee to confer with Elizabeth, 13; suggestion of changes through, to accommodate Elizabeth, 14; defined as public street of Elizabeth, 52; catch basins along, permission given to Elizabeth to construct, 176, 177; lowering of grade in front of Sanitary Company, 196; telephone conduit changes, reimbursement ordered, 259; culvert near North Avenue, 323; wharf, question of fire danger referred to Counsel, 345.

Bayway, *see also* Elizabeth.

Benefits, assessments for, placed with various municipalities, 258.

Bennedict, Phoebe, right of way, payment for, 178.

Benjamin, Orren C., right of way, change to D. L. & W. R. R. considered, 92; relocation adopted, 100.

Bills to be referred to Executive Committee for approval, 61; affidavit must accompany, 70.

Board of Education, Union Township, compensation for right of way and to be allowed to connect schoolhouse, 261b.

Bolles, Frank, tenant of Harrison, payment to, 170.

Bond, Engineer's, 35, 36;
Treasurer's, 33, 35; renewal approved, 115, 254.

Bookkeeper for Joint Meeting, William B. Adams retained, 262.

Borcherling, Mrs. Mary, right of way, price offered, 150; payment for trees, 170.

Borings, test, bid of P. and J. Conlon accepted, 61; contract with, on Section 2, 92.

Breaking ground, committee of arrangements, 93; Joint Meeting to pay for spade, 103.

Brewer, Graham H., temporary secretary of Joint Meeting organization, 26.

Brown, Edward P., bill for earth used in filling in on Section 4 ordered paid, 310.

Brown, James, estate, right of way through property of, 153; needed, 179; condemnation directed, 184; needed, 212, 213; condemnation directed, 214, 223; payment ordered, 253; deed executed, 282; refusal of three heirs to accept share, 282.

Brown, W. M., retained as Consulting Engineer, 238; report of inspection, 244-247.

Bruno, Salomone & Petitti, proposal for work Section 6, 185.

Budd, Fannie J., right of way, condemnation directed, 113; condemnation to proceed, 132.

Bulkhead to be constructed on Staten Island Sound at Bayway, 51.

Burnett, J. A. and E. M., right of way through property of, 145; price offered, 151; payment ordered, 159.

Burnett Avenue, Union Township, discharge from underdrain, referred to Engineer, 350.

Burt Manufacturing Co., right of way through McCabe estate, payment ordered, 198.

Campbell, Charles, appointed temporary inspector, 189; permanent inspector, 190.

Capacity of sewer in each division, table, 17, 18; reapportionment allowing Summit 3,000,000 gallons, 20, 21.

Carter, Charlotte, right of way, condemnation directed, 133; payment ordered, 163.

Catch basins along Bayway, permission to Elizabeth, 176, 177.

Central Railroad, piling and timber work, 226; approved, 268.

Chairman of Joint Meeting organization, Edward D. Tuttle, 27; salary of, 33; W. L. Glorieux elected, 41-42; term of office, 116, 117; opinion of Counsel, 119; reorganization, Francis Speir, Jr., elected, 373.

Cleaning outfit of Earle & Dougherty, question of purchase referred to Engineer, 375.

Clinton Street, Vailsburg, extra compensation to be allowed contractor on, 261f;

Claim of contractor for extra work not allowed by Counsel,

270; bill of F. W. Snyder for repairing, referred to Counsel, 299; bill for repairing, 319, 320.

Committee to engage consulting engineer appointed, 8.

Committee on Reorganization, report, 368-372.

Committees, formation of, 31.

Compensation of Engineer, 33.

Compensation of Officers, committee appointed to report on, 29; committee report, 30, 31.

Compensation of Officers, *see also* Salary.

Conlon, P. and J., test boring bid accepted, 61; contract with, for test borings, Section 2, 92.

Connections with Joint Sewer, rules regarding, 282; by whom made; 283; material, 284; inspection, 284; conditions for joint contracting municipalities, 292; application blanks ordered printed, 329; form of application, approved, 334.

Connolly Contracting Co., proposal for work Section 4, 173.

Consent of municipalities, Counsel asked for opinion on, 103.

Construction of Joint Sewer, account and method, ordered printed, 347.

Contract, reported prepared, 21; ordered sent to each municipality, 21;
with Elizabeth, 49;
with Engineer ordered executed, 57; reported executed, 59;
with South Orange Township, proposed, submitted, 63; execution authorized, 64;
with Union Township, proposed, submitted, 64.

Contracts and specifications of all sections to be examined by Counsel and Engineer, 91.

Contracts and specifications, instructions to bidders, Section 1, ordered printed, 70.

Contracts, reasons for excess over original estimate of cost, 230-232.

Contractors, collection of penalties from, by Engineer, opinion of Counsel, 56; to file check for $5,000 with bids on each section, 109.

Contractor's license, form approved, 334; bond, one surety instead of two, 335.

Conway, James, proposal for work Section 4, 173; proposal for work Section 6, 185.

Corey, James M., right of way, offer to, 138, 139; letter regarding inlets referred to Engineer, 236.

Cost apportionment of, report by Engineer Potter, 6; approved by all municipalities except Vailsburg, 12.

Cost, reapportionment of, table showing, 17, 18; necessary on account of Summit, 19.

Cost second reapportionment, table showing, 20, 21.

Costa Construction Co., proposal for work, Section 3, 144; contract awarded, 158; deposit ordered returned on approval of bond, 162; time of filing bond extended, 164; bond approved, 169; extra cost for pneumatic tunnelling, 252; change in contract ordered, 252-253; proposed amendment to contract, 261a; claim against, by I. C. Mishler, 261f; request to correct contract by adding "per lineal foot," 269; payments to be withheld until amendment executed, 280, 281; matter of extras, 289; extra work, quicksands, etc., payment recommended by Executive Committee and contract authorized, 309, 310; final acceptance of portion and payment ordered, 321; payment of portion of withheld amounts ordered, 346; claim for extra compensation for cement washing laid over, 356; special payment ordered, 360; final estimate ordered paid, 363; claim for extra work, etc., adverse report by Executive Committee, 365; concurred in, 366; compromise offered by Joint Meeting in settlement, 367.

Counsel, Adrian Riker, elected at Joint Meeting organization, 28; salary of, 33; opinion regarding contract with Engineer Potter, 56; opinion regarding proposed change in size of sewer, 56; bill for retainer and services paid, 367.

Counsel of reorganization, Adrian Riker elected, 374; retainer, 372.

Cox, Charles W., appointed to Committee on Private Rights of Way, 119.

Crowell, James, claim paid by Earle & Dougherty, 341.

Cunningham, Thomas, resolutions on his death, 72; estate paid his salary, 74.

Damages, awarding, placed with various municipalities, 258.

Day, Edward, tenant of Kirkland, right of way, payment to, 170; to be paid extra for additional right of way, 261f.

De Grasse, Charles, claim for damages on Nelson property right of way, 271; report of Engineer, 278.

Delaney, E. G., appointed inspector, 258.

D. L. & W. R. R. letter reported regarding right of way along old West Line R. R., 14; right of way between South Orange and Maplewood Stations, negotiations to be made, 92; right of way through South Orange, agreement referred to Counsel, 244; bill of contractors on account of delay, 325; referred to Counsel, 327; right of way at Corey property, 325; terms accepted, 327.

Dereveaux, Charles, appointed inspector, 156.

Diamond Mills, Millburn, right to discharge into sewer granted, 206.

Dibble, mechanical recording gauges, purchase recommended, 257; ordered purchased, 259.

Discharge into Joint Sewer, nature and restrictions of, 285, 286.

Dorer, Michael, right of way, payment ordered, 114; offer to, 115; additional payment ordered, 152.

Dorer, G. & J., right of way, change of location, 166, 167; not agreeable to change, 172.

Drainage to be provided for, in Elizabeth, 50; amount to which Elizabeth entitled, 50-51.

Eager, George, employed to obtain options, 62, 63.

Earle & Dougherty, proposal for work, Section 2, 117; proposal for work, Section 4, 122; rejected, 126; deposit returned, 127; new bids, 133; rejected, 162; deposit returned, 163; proposal for work, Section 4, 173.

Earle & Dougherty, proposal for work, Section 5, 120; consideration postponed, 120; contract awarded to, 126; deposit returned with interest, 127; bond approved, 132; deposit returned, 132; contract ordered executed, 132; progress of work July, 1902, 155; question of paying for lowering grade in Lyons Avenue, 189; extra for iron pipe excessive, 221, 222; claim of Alexander Smith

against, 219, 220; correspondence regarding, 224; referred to Counsel, 226; ordered withheld, 234; letter from, regarding extra compensation on Lyons Avenue, 261f; work on main stem and Lyons Avenue accepted and payment ordered, 299; notified time of contract expired, 302; payment on account of final payment, 307; final acceptance of portion and payment ordered, 321; claim of E. T. Henschell against, 335; claim of James Crowell paid, 341; claim of Fred Stone referred to Engineer, 341; request for payment of withheld amount not granted, 347; claim of Fred Stone referred to Engineer, 347; claim of William M. Sandford for damages, referred to Counsel, 350; work accepted and payment ordered, 362; payment to John Spies to be charged against, 367.

East Orange to be asked to join, 9; necessity of joining system doubtful, 11.

Edge, Christopher, right of way, payment ordered, 123.

Ehrhardt, John, right of way, condemnation directed, 114; condemnation to proceed, 132; payment ordered, 153; bill for damage to trees, 190; Engineer's report on, 200; payment recommended, 257; referred to Counsel, 259; allowance made by Engineer, 263; referred to Counsel, 268; opinion of Counsel, 274; payment ordered, 286.

Elberson, William N., right of way, condemnation directed, 113; condemnation to proceed, 132; payment ordered, 159.

Elizabeth, committee to confer with, regarding Bayway right of way, 13; suggestion of changes to accommodate, 14; suggestion considered unreasonable, 14; recommendation to take steps to secure consent of, 30; Special Sewer Committee, communication from, 43; terms and conditions rejected, 43; location of Joint Trunk Sewer within, described, 49; proposed agreement with, 50; size of Joint Trunk Sewer within, described, 50; drainage to which entitled in Joint Trunk Sewer, 50-51; repair and maintenance by Joint Sewerage Commission, 52; City Surveyor to receive plans of Joint Sewer, 51; house connections with joint sewer, right to make, 51; inspector of sewer, to be paid by Joint Sewerage Commission, 51; ownership of capacity defined, 52; size of sewer in, reso-

lution specifying, 69; advertisement for proposals for building sewer in, ordered, 69, 70; streets in bad condition due to work of contractor Shea, report on, 161; permission given to construct catch basins, 176-177; condition of streets, 266; objection to dirt left under Penn. R. R., 267; objection to Mrs. Watson's sewer connection, 267; notification of completion of Section 1, 271; request to make connection with sewer near Amboy Avenue, 277; referred to Counsel, 280; application through Engineer, 287; opinion of Counsel, 290.

Elizabeth right of way, opposition expected, 6; discussed in executive session, July 22, 1901, 43; legal proceedings to be taken by Counsel, 43-44; application to Judge Van Syckel for an order, 46; Counsel ordered to press application for Commissioners to assess damages, 48; amicable arrangement proposed, 49; granted, 50; proposed agreement, 49-52; adoption of, 53.

Elizabeth River, leakage of sewer into, 312, 316, 317.

Elizabeth Gas Light Co., bill for altering gas mains, 190; referred to Engineer, 328; ordered paid, 341.

Elizabethtown Water Company, 135, 136, 137; right of way through property of, 148; payment ordered, 197; question of substituting concrete for pile foundation, 217; referred to Executive Committee, 220; concrete instead of wooden piling ordered, 233, 243, 244; pipes across property, Engineer directed to have properly caulked, 353; reported done, 354.

Emmer, Robert J., proposal for work, Section 6, 185.

Enabling act explained, 8; Counsel directed to prepare, 65; Counsel directed to prepare, to construct sewer and pay damages later, 66; proposed acts prepared, 73; proposed amendment leaving question of benefits and damages to local jointly contracting municipalities, 211.

Engineer, engagement of, authorized, 8; Alexander Potter, elected at Joint Meeting organization, 28, 29; compensation, 33; contract with, 33, 35; bond, 35, 36; contract with, ordered, holding back $3000 in lieu of bond, 40; opinion of Counsel regarding collection of penalties from contractors, 56; contract with, ordered executed, 57; reported

executed, 59; to notify inspectors of shut-downs of work of week or more, 210; monthly reports, ordered printed, 223; bills for commissions and extra work allowed, 223; commissions on extra work, referred to special committee, 294; payment on account of commissions, 305, 306; compensation for extra work compromise, 306, 308; for permanent organization, outline of duties, 371; salary, 373; Alexander Potter elected, 374.

Engineer Reports, 130, 141, 155, 165, 180, 187-189, 198-200, 206-210, 216-218, 226-230, 242-243, 251, 255-257, 261b, 263-264, 276-279, 287-290, 302-305, 314-318, 322-326, 332, 339-340, 343-345, 351-352, 354-355, 358-360; Preliminary Report, Appendix.

English, N. J. C. Counsel for Union Township, as to concessions for right of way, 58.

Essex County Board of Freeholders, application to open Springfield Avenue, 169.

Essex County Road Board, deposit with, to restore condition of South Orange Avenue, Vailsburg, 300.

Executive Committee, membership and powers, 31; appointment of first permanent, 32; report on salaries, meeting place, etc., 33, 34; salary of members proposed, 39; referred to Counsel, 39; opinion of Counsel, 40; salary of $300 per annum voted, 40-41; report on bills, etc., 45; to negotiate with South Orange Township regarding right of way, 53; to negotiate with Union Township regarding right of way, 53; authorized to accept options for private rights of way, 59; bills to be referred to, for approval, 61; authorized to take up matter of legislative relief, 64; George C. Hand, elected to, 73; Edward Glazier elected to, 73; report to Joint Meeting, June 16, 1904, 364-366; of reorganization, attendance fee, 373.

Executive session June 13, 1901, 42; July 22, 1901, 43.

Extra costs on sewer tabulated December, 1902, 208-210.

Extra work, letter from Engineer detailing reasons for, 230-232; Section 1, claims of Contractor Shea, report on, by Engineer, 264-267.

Extras, Engineer directed to report all, in detail, 189; request of Engineer for meaning of resolution regarding, 202.

Faitoute, Theodore C., claim for damage to property, referred to Counsel, 302; complaint regarding sewer in front of property, 323; report of Engineer, 351; payment ordered, 352.

Fandango Mills, sewage discharge from, report on, 101.

Farrell, James F., appointed inspector, 190; services dispensed with, 352.

Fenner, Henry, right of way, payment ordered, 123.

Fidelity Trust Co. offer on furnishing searches of land titles, 91-92; preparing searches, 100.

Furniture for meeting rooms ordered, 46; committee appointed to dispose of, 375.

Garwood, George F., right of way, payment ordered, 96.

Glazier, Edward, elected to Executive Committee, 73.

Glorieux, W. L., elected chairman of Joint Meeting, 41-42.

Gluckfield, Samuel & Co., connecting without permission, notified to stop work, 347.

Graf, Carl, right of way, payment ordered, 123.

Gray, Thomas, tenant of Kirkland right of way, payment to, 170.

Grove Street, to be paved by Freeholders, 218.

Gauges, *see* Recording Gauges.

Hall, James P., proposal for work, Section 4, 173; financial standing endorsed, 175; contract awarded to, 175; bond set, 176; deposit check to be returned, 176; damages to Manda to be deducted, 262; request for extension of time, 301; bill on account of D. L. & W. R. R. delay, 325; referred to Counsel, 327; bill on account of restriction at Meadowbrook Lane, 325; referred to Counsel, 327; claim for work when directed by Engineer rejected, 328, 331; extra on account buying pipes locally, referred to Counsel, 330; final payment ordered, 334; work accepted and final payment ordered, 341.

Hall, Theodore W., appointed inspector, Section 5, 142; request for his discharge laid on table, 269; services dispensed with, 340.

Halsman, William, employed as temporary inspector, 258.

Hand, George C., elected to Executive Committee, 73; appointed inspector on Section 3, 177; matter of laying off left to Engineer, 215, 216; laid off by Engineer, 292, 293.

Hanna, William, proposal for work, Section 4, 122; rejected, 126; new bids, 133.

Harrison, Martha M., right of way along property of, 146.

Harrison, Martha, James B. and Margaret, right of way through property of, 146; price offered, 151.

Harrison, right of way, payment to tenant, 170.

Harrison Construction Co., proposal for work, Section 1, 82-84.

Proposal for work, Section 2, 117; awarded contract, 118, 119; bond substituted, 122; contract ordered executed, 122; deposit returned with interest, 124; bill for loss of use of cable machine, 153; progress of work July, 1902, 155; letter regarding need of more rights of way, 189; letter regarding deduction in allowance for foundation lumber, 235; claim allowed, 235; request to release bond, 301; must continue for one year, 301; final payment error corrected, 305; work accepted and final payment ordered, 291.

Proposal for work, Section 3, 144; deposit returned, 158.

Proposal for work, Section 4, new bids, 133.

Proposal for work, Section 6, 185; awarded contract, 186; contract ordered executed, 186; letter asking size of sewer, 193; largest size adopted, 195; work accepted and payment ordered, 331; final payment ordered, 334; payment of amount retained from final payment ordered, 341.

Hart, John J., Co., proposal for work, Section 6, 185.

Hartshorn, Stewart, right of way, 166; would sell right of way for $25.00, 261b.

Hayward, George, appointed inspector, 159; services dispensed with, 340; claim for balance not included by Engineer, referred to Counsel, 345; allowed, 347.

Headly, ————, right of way, payment ordered, 111.

Hedden, Charles P., right of way, payment by W. Rollinson refunded, 160.

Henderson, Anna L., right of way, needed, 179.

Henschell, Eugene T., claim against Earle & Dougherty, 335.

Higginson & Shannon, proposal for work, Section 6, 185.

House Committee, vacancy filled, 89.

Hutmacher, George and John, right of way, payment ordered, 123.

Inspector for permanent organization, outline of duties, 371; salary, 373; F. Ross Sandford elected, 375.

Inspector, special, Engineer authorized to employ, 341.

Inspectors to attend meetings to report on progress of work, 134; supplied with steel tapes, 143; capability of, report by Engineer July, 1902, 155; transfer from one section to another authorized, 181; additional needed, report by Engineer, 188; directed to be on the work all working hours, 189, 190; question of payment for idle days, 200, 201; payment made for Thanksgiving, 1902, 201; payment for stormy weather, 201, 202; date to receive monthly pay, 205; to be notified of shut-downs of work of week or more, 210; Inspectors to make deposit for steel tapes, 261g; payment for work under air pressure, 310; local, to be ex-officio inspectors of Joint Meeting, 331.

Irvington represented at first meeting, 4; voted $30,000, 7; amount of sewage and per cent. of capacity, 17; second reapportionment, 20, 21; apportionment of cost, 18; second reapportionment, 20, 21; members of Joint Sewerage Commission, 1901, 24; 1901-2, 37; Town Council to recommend Y-branch distances, 177; T-branches to be placed every twenty-five feet, 181; condition of roads left for attention of Engineer, 299; lateral connections authorized, 308; assessment laid over to investigate payment for certain repairs, 339.

Irvington Athletic Club, right of way, payment ordered, 129.

Irvington Branch, survey and estimate authorized, 5; price of options along, 14.

Joint Meeting organization call, 25, 26; minutes ordered printed, 40; date of meetings changed, 95; permanent chairman, term of office, 116, 117; opinion of Counsel, 119; committee to draft form of permanent organization, 319.

Joint Sewer, invitation to discuss practicability of, 4; diagrams submitted showing each municipality's portion, 12; location and size within Elizabeth described, 50; proposed change in size from 36 to 42 inches, 54; opinion of Counsel, 56; size increased to 42 inches from Woodbridge Avenue, 63; space, disposal of, to municipalities not on line, enabling act authorized, 65; resolution changing size prepared, 68; contracts and specifications to be examined by Engineer and Counsel, 91; breaking ground, committee of arrangements, 93; change of location reserved, notice printed on maps, etc., 106; connections with by joint contracting municipalities, 292; Rules and Regulations limiting the use of, 282-286; Rules and Regulations for use of, approved with amendments, and ordered printed, 320; local inspectors to be ex-officio inspectors of Joint Meeting, 331; form of application and permit for connection approved, 334; Rules and Regulations for use of, amendment, 335; account of work and method of construction, ordered printed, 347; inspection of four sections by Executive Committee June 1, 1904, 358.

Joint Sewer Act, amendment proposed leaving question of benefits and damages to local jointly contracting municipality, 211.

Joint Sewer, Section 1, specifications from Staten Island Sound to Morris Avenue submitted, 67; approved, 68; size of, in Elizabeth, resolution specifying, 69; contract and specifications to bidders, ordered printed, 70; bids received, 75; detailed, 75-84; referred for tabulation, 84; tabulation, 85; award to T. J. Shea, 85-86; change of grade on account Roselle Park, 208; size of wharf increased, 208; increased cost on account extra brickwork, 208; increase of cost due to timber in foundation, 208; special construction under Pennsylvania Railroad, 208; extra cost due to under-drains, 208; extra cost due to inaccurate borings, 208; quicksand on Bayway, 227; change of grade approved, 234; final estimate for completion, report by Engineer, 264-267; claim for extra rock work not allowed by Engineer, 265; for quicksand allowed, 266; approved, 268; final inspection made by Mr. Speir, 266; statement of contractor all bills paid, 267; amount of

final payment, 267; construction certified and accepted, 268; retention of 3% referred to Counsel, 268; opinion of Counsel, 273; final payment, 273.

Joint Sewer, Section 2, change in line and grade referred, 89; plans and specifications, matter laid over, 89; plans and specifications approved, 94; advertisement for proposals ordered, 94, 95; specifications, instructions to bidders, etc., ordered printed in book form, 96, 97; time limit for completion, 116; bids opened, 117; award to Harrison Construction Co., 118; more rights of way needed, 189; extra costs due to quicksand, rock, extra brickwork, etc., 209; change of grade approved, 234; work reported completed, 288; accepted and final payment ordered, 291; recommendation of acceptance withdrawn, 297; examination for report referred to Edward S. Rankin, 298; final payment error corrected, 305; report of Edward S. Rankin on construction, 311-314; ordered printed, 318; leakages noted, 312; gaugings taken, 312, 313.

Joint Sewer, Section 3, specifications referred for examination, 96, 104; placed on file with changes, 108, 109; specifications to include capacity to accommodate Morristown, 129; relocation of line approved, 135-137; advertisement for proposals ordered, 137; contract and specifications ordered printed, 142; time of completion, 144; bids opened, 144; report on bids, 157; contract awarded to Costa Construction Co., 157, 158; time for completion extended, 169; work suspended during winter, 207; extra costs due to quicksand, brickwork, etc., 209; work partially suspended, 217; question of substituting concrete for pile foundation in Millburn, 217; referred to Executive Committee, 220; change of plan to include drains recommended by Engineer, 228; underdrains ordered constructed, 233; concrete in place of wooden piling ordered, 233; W. M. Brown engaged as Consulting Engineer, 238; pneumatic process of tunnelling to be adopted, 251; extra cost for pneumatic tunnelling, 252; change in contract ordered, 252-253; contract corrected to include "per lineal foot," 269; tunnel progress satisfactory, 277; extension directed, 280; tunnel work progress reported, 288; quicksand controversy referred

to Executive Committee, 291; extra work, quicksand, etc., payment recommended by Executive Committee and contract authorized, 309, 310; final estimates for certain portions, 317; tunnel section change of line to avoid shaft, 319; final acceptance of portion, 321; final estimate of force account construction, 337; special payment ordered, 338; claim of contractor for extra for cement washing laid over, 356; work accepted subject to restoration of private rights of way, 361.

Joint Sewer, Section 4, specifications referred for examination, 96, 104; placed on file with changes, 108, 109; approved, 110, 111; proposals advertised, 111; bids opened, 122; all rejected, 126; new bids opened, 133; award postponed, 143; bid of Earle & Dougherty rejected, 162; ordered re-advertised, 162; time for completion fixed, 173; proposals opened, 173; contract awarded to James P. Hall, 176; relocation between Jefferson and Hilldale Avenues considered, 184; work held up, 207; extra costs due to timbering, quicksand, etc., 209, 210; request of contractor for extension of time, 301; payment for earth used for filling in, 310; bill on account of restrictions at Meadowbrook Lane, 325; referred to Counsel, 327; final payment ordered, 334; work accepted and final payment ordered, 341.

Joint Sewer, Section 5, specifications referred for examination, 96, 104; placed on file with changes, 108, 109; approved, 110; proposals advertised, 110; bids opened, 119, 120; award to Earle & Dougherty, 126; size of pipe increased to 10 inches, 142; report on use of warped pipe, 160, 161; Y-branches distance discussed, 177; extra costs due to rock, etc., 210; acceptance of Lyons Avenue work if approved by Engineers, 291; recommendation of acceptance withdrawn, 297; report of engineers of Newark, Irvington and Joint Meeting, 298, 299; final acceptance ordered, 299; acceptance of main stem re-passed, 307; Lyons Avenue branch acceptance re-passed, 307; final estimates for certain portions, 317, 318; final acceptance of portion, 321; final acceptance of work laid over, 355; weir manholes ordered constructed, 361; work accepted and payment ordered, 362.

Joint Sewer, Section 6, specifications referred for examination, 96, 104; placed on file with changes, 108, 109; action postponed to hear from Morristown, 110; new course ordered, 158; report on change of line, 165, 166; referred, 167; change accepted, 168; alternate bids provided for, 172; advertisement ordered, 174; proposals opened, 185; contract awarded to Harrison Construction Co., 186; letter from Harrison Construction Co. asking size of sewer, 193; largest size adopted, 195; work partially suspended, 208; extra costs due to timber, brickwork, etc., 210; quicksand on Millburn Avenue, 279; report of assistant engineer on imperfect work, 292, 293; work accepted and payment ordered, 331; payment of amount retained from final payment ordered, 341; reapportionment approved, 367.

Joint Sewerage Commission, membership 1901, 24; 1902, 37-38.

Joints, water-tight, report of sub-committee on, 10.

Jones, Hiram T., tenant, right of way and damage, payment ordered, 132.

Julbe, Vincent M., right of way, payment ordered, 215.

Kean, Hamilton F., right of way, payment ordered, 215, 253.

Kean, Julian and Hamilton, right of way, payment ordered, 197.

Kelley & Kelley, proposal for work, Section 2, 117; proposal for work, Section 4, 122; rejected, 126.

Kettler, Theodore, appointed inspector, Section 2, 128; resignation, 186.

Kirkland, Lucy, right of way, payment ordered, 114; right of way through property of, 146; payment ordered, 153; payment to tenants, 170.

Kissam, F., employed to obtain options, 63.

Kubach, George, right of way through property of, 145; price offered, 152; payment ordered, 160; tenant of Kirkland, right of way, payment for, 178; windmill to be erected for, 261f; well and windmill, report of Engineer on, 278; action of Engineer on having well dug approved, 281; extra needed for change in line of sewer, 319; additional amount asked, 324; payment ordered, 327; bill for repairs to windmill paid, 347.

Landon, Martin, appointed inspector, 240.

Larney, Patrick, right of way, offer amended, 104; payment ordered, 112; payment increased, 133; damage to brook and trees referred to Engineer, 261; claim for damages, 274, 275; payment ordered, 286; debris removal referred, 318, 319; right of way, for sub-drain, additional amount asked, 323; payment ordered, 327; claim for damages referred to Committee, 339; accepts amount offered in settlement, 342; damages, payment ordered, 356; contract with, to keep pipe crossing on his property clear of driftwood, 362, 363; first payment ordered, 367.

Legislation, Counsel requested to draw and have introduced an act, 204 reported passed, 234;

Committee on, appointment authorized, 69; Mr. Lyon appointed on, 73;

Permanent Chairman and Executive Committee to act as, 211.

Legislative bills, copies to be kept on file, 71; reported passed, 92.

Legislative relief, Executive Committee authorized to take up with Counsel, 61; report on, by Executive Committee, 65.

Lehigh Valley Railroad, right of way across, consideration nominal, 92; contract executed, 96.

Liability, report ordered on, 7.

Licenses issued by Joint Meeting for making connections with Joint Sewer, 283, 284; form approved, 334.

Lindsley, Stuart, paid $150 for right of way, 261b; claim of tenant for damage to fences not valid, 275.

Lindsley Street, Union, bad condition of road at Bayway, 297.

Location of sewer, right to change, reserved by Joint Meeting, 106.

Long, Dennis, right of way, condemnation directed, 133; payment ordered, 159.

Lumber for foundations, not stated in contracts, price fixed, 222.

Lyon, Charles O., temporary chairman of Joint Meeting organization, 26; resolution on retirement from Joint Meeting, 97, 101, 102.

Lyons Avenue, material reported extremely bad, 188; lowering of grade, question of paying contractors, 189; sewer construction stopped near Newark line, 199; change of

grade, consultation with Engineer Adam of Newark, 201; change of grade of sewer ratified, 205; agreement ratified for Newark to complete sewer, 205; opinion of Counsel regarding, 219; sewer engineers of Joint Meeting, Newark and Irvington to examine and report, 234; letter from Earle & Dougherty regarding, 261f; to be accepted upon favorable report by engineers, 291; recommendation of acceptance withdrawn, 297; report of engineers of Newark, Irvington and Joint Meeting, 298, 299; final acceptance ordered, 299; acceptance repassed, 307; Newark contract with Harrison Construction Co., 325; payment by Joint Meeting, 328.

McCabe, Owen, estate, release of right of way through, 198; right of way needed, 241; condemnation directed, 241; payment ordered, 253.

McGovern, William F., proposal for work, Section 4, new bids, thrown out, 133.

McGuire, Patrick, employed to obtain options, 62, 63; services dispensed with, 237.

Manda, W. A., right of way, change to D. L. & W. R. R. considered, 92; offer accepted, 125; unwilling to concede extension of time, 171; claim for damages referred to Counsel, 248; claim for damages referred to Engineer, 261a; method of payment, 262.

Manhole covers with locks, Engineer ordered to purchase twenty-five, 356.

Manholes, arrangement of, in Elizabeth, 50.

Maps of the Sewer, Engineer to prepare, 88.

Marion Avenue, Engineer directed to fill hole in, 216.

Meadowbrook Lane, bill of contractors on account of restrictions, 325; referred to Counsel, 327.

Meeker, John D., right of way, payment ordered, 240.

Meetings, committee appointed to report on place, 29; when and where to be held, 30, 31; special, how called, 31; order of business at, 31; day of, changed, 36, 37; rooms in Century Building, Newark, leased, 44; date of regular changed to first Thursday after first Monday, 95.

Membership of Municipalities at organization 1901, 21; 1901-2, 37-38.

Metropolitan Construction Co., proposal for work, Section 1, 77-79; third in tabulation, 85.

Millburn Avenue, quicksand, report by Engineer, 279; deposit with Freeholders as guarantee of replacement in original condition, 262; connections with sewer on southeast side, agreement authorized, 310.

Millburn Branch, survey and estimate authorized, 5; Engineer directed to lay out new course, 158; provision for alternate bids, 172; terminus fixed, 220.

Millburn Township invited to join, 4; election necessary to decide, 7; amount of sewage and per cent. of capacity, 17; apportionment of cost, 18; second reapportionment, 20, 21; members of Joint Sewerage Commission, 1901, 24; 1901-2, 37; discharge of sewage from mills discussed, 97; referred to Engineer for examination, 98; report of Engineer, 101.

Minutes of Joint Meeting ordered printed after each meeting, 40; reprinting and indexing ordered, 1.

Mishler, Isaac C., claim against Costa Construction Co., 261f.

Moore, Thomas F., proposal for work, Section 1, 75-77; second in tabulation, 85.

Morris Avenue, Springfield, letter from attorney of Springfield regarding authority for construction of sewer, 291; referred to members from Summit and Millburn, 292.

Morris Plains State Hospital, letter regarding joining sewer, 194.

Morristown, letter asking privilege of joining trunk sewer, 44; referred to Executive Committee, 44; referred to Counsel, 46; request voted not feasible, 46, 47; again referred to Executive Committee, 61; letter to, 62; letter from, 65; letter saying more time needed, 68; notified of passage of legislation, 92; to await action of certain bills, 96; asked when it would decide, 105; provision for in alternate bids, 172; no word from, 181; letter from Morristown counsel, 191.

Morristown Sewerage Committee invited to attend Joint Meeting, 120; attend meeting, 121; again notified, 125; no definite

report, 129; letter hoping to make formal application, 184; position regarding sewer explained, 194.

Municipalities' assessments. *See* Assessments, municipalities.

Municipalities notified to contribute share of preliminary expenses, 47.

Munn Avenue Sewer, extra work ordered paid, 307; change of grade and size approved, 308.

Myers, Clarence D., counsel fees in Weppler case, 224.

Nagel, Ernest, employed to obtain options, 63; bill for obtaining options, 65.

Nelson, Thomas, Sons, right of way through property of, payment ordered, 153; claim by Charles De Grasse for damages, 271; report of Engineer, 278.

New Orange, sewage to be discharged in Joint Sewer, condition of Union Township, 60.

New York and New Jersey Telephone Co., contract with, 180; ordered executed, 190; reimbursement for conduit changes Jersey Avenue and Bayway, 259.

New York Pollution Commission, communication from, 345.

Newark represented at first meeting, 4; branch sewer survey and estimate authorized, 5; apportionment, opinion of Harrison VanDuyne, 6; amount of sewage and per cent. of capacity, 17; second reapportionment, 20, 21; apportionment of cost, 18; members of Joint Sewerage Commission, 1901, 24; 1901-2, 37; to complete Lyons Avenue Sewer, agreement ratified, 205; opinion of Counsel regarding, 219; contract with Harrison Construction Co., for Lyons Avenue sewer, 325; payment by Joint Meeting, 328.

Newark Board of Street and Water Commissioners, letter of Engineer Potter to, regarding increased cost of sewer, 230-232.

Noll, Michael, tenant, claim for damage to fences, not valid, 275.

North Avenue, Union Township, 3 1/2 inches of stone to be spread on, 115; to be paid $600 in lieu of macadamizing, 261f, 269, 270.

North Jersey Railway Co., claim for filling in over sewer on South Orange Avenue, 350.

Officers of Joint Meeting, 1901-2, 38; terms of, 373.

Options on right of way, committee appointed to secure, 12; Mr. Baker to be employed, 13.

Options on private rights of way, minutes not to be printed, 59; Executive Committee authorized to accept, 59; agents to report weekly, 59-60; Secretary instructed to keep charge of, 60; agents employed to obtain, 62, 63.

Order of business, 31.

Ordinance draft, reported not ready, 12; submitted by Col. Price, 14, 15; to be printed and delivered to each municipality, 15; ordered redrafted leaving out South Orange Township, 17; reported passed by all municipalities, 21.

O'Reilly, John, right of way, payment ordered, 111.

Outlet of Sewer, recommendation to apply to State Sewerage Commission to locate, 30; approval asked of State Board of Health, 53.

Owen, James, Engineer, engaged to make examination and report, 9.

Report, Appendix.

Ownership of trunk sewer, report ordered on, 7.

Parcell, Noah W., right of way, condemnation directed, 112, 134; payment ordered, 159; allowance to commissioners, 271.

Peapack and Passaic Valley Railroad, price offered for right of way, 71; change of line to keep on, 103; report of Engineer on, 105; recommendation to follow concurred in, 106.

Penalties from contractors, collection by Engineer, opinion of Counsel, 56.

Pennsylvania Railroad crossing, Elizabeth, special construction under, 208; proposed contract for constructing sewer under, 248; referred to Counsel and ordered executed if approved, 248; steel section under, claim for extra work allowed by Engineer, 265; approved, 268.

Peoples, David, proposal for work, Section 2, 117; proposal for work, Section 4, 122; rejected, 126; new bids, 133, 173.

Permits for connecting with Joint Sewer, rules regarding, 282, 283; payments for, 284.

Permanent chairman, attendance fee, no salary, 372.

Phraner, Francis, permanent Treasurer of Joint Meeting organization, 27, 28.

Pierson, Hubert, right of way, offer by accepted, 131.

Pipe, increase in size of, report of sub-committee on, 10; size recommended, 11.

Pipe, warped, report on use of in Fifth Section, 160, 161.

Plumbers, outline of procedure necessary to become licensed plumbers of the Joint Meeting, 347; opinion of Counsel, 349; recommendation adopted, 349.

Pneumatic process of tunnelling adopted for Section 3, 251.

Potter, Alexander, authorized to make preliminary survey, 4; preliminary report presented, 5; to report on apportionment of cost, 5; report on apportionment ordered printed, 7; elected Engineer of Joint Meeting, 28, 29; $500 voted to be charged to Commission's account, 41; $500 voted for services to be charged to commissions, 44, 47; notified to send contract with alterations to Counsel, 47; rent of office room referred to Executive Committee, 47; paid for extra work relocating line of sewer, 128; elected Engineer of reorganization, 374.

Preliminary report, Appendix.

See also Engineer.

Potter, William, right of way, condemnation directed, 113; condemnation to proceed, 131; price offered, 151, 152; condemnation directed, 170; required to keep up work Section 2, 188; payment ordered, 197; expert fee paid, 224.

Potter-Magin, right of way, allowance to commissioners, 271.

Preliminary survey by Alexander Potter authorized, 4; report presented, 5.

Preliminary report, Appendix.

Preliminary work, papers and documents to be obtained from President and Secretary of preliminary meetings, 36.

Price, E. L., bill for professional services on preliminary work referred to Executive Committee, 41; bill for professional services ordered paid, 45, 46, 47.

Private rights of way, agents to set valuation and report, 63;

Counsel directed to draw act permitting construction of sewer and payment of damages later, 66; proposed act prepared, 73; certain payments approved, 66, 67; action in certain cases, 71; report of committee on, 73; referred back to committee, 73; form of resolution for taking land and the compensation therefor, 86, 87; report of committee on, 100, 101; Charles W. Cox appointed to Committee, 119.

See also names of owners, etc.

Proposals for building sewer in Elizabeth, Section 1, advertisement ordered, 69, 70; received, 75; detailed, 75-84; referred for tabulation, 84; tabulation, 85.

Proposals for Section 2, advertisement ordered, 94, 95; opened, 117.

Proposals for Section 3, advertisement ordered, 137; opened, 144.

Proposals for Section 4, advertisement ordered, 111; readvertisement ordered, 126; opened, 122; all rejected, 126; new bids opened, 133; award postponed, 143; ordered readvertised, 162, 163; opened, 173.

Proposals for Section 5, advertisement ordered, 110; opened, 119, 120.

Proposals for Section 6, advertisement ordered, 174; opened, 185.

Proposed agreement between Joint Sewerage Commission and Elizabeth, 49-52; adoption of, 53.

Rahway River, method of crossing, to be referred to consulting engineer, 239; crossing caretaker, George Smith employed, 361.

Rankin, Edward S., examination of Section 2 referred to, for report, 298; report on the construction of Section 2, 311-314; ordered printed, 318; bill laid on table, 330; ordered paid, 334.

Read, W. W. & Co., proposal for work, Section 2, 117.

Recording gauges, purchase of two additional ordered, 308; *see also* Dibble Recording Gauges.

Reorganization, Special Committee on, report, 368-372.

Resolution approving plans, etc., passed by all municipalities except Vailsburg, 12.

Resolution for taking land and compensation therefor, form adopted, 86-87.

Resolutions on retirement of Charles O. Lyon from Joint Meeting 101, 102.

Resolutions on the death of Thomas Cunningham, 72.

Restriction of use to allotted capacity, referred to Committee, 12.

Reynolds, Thomas & Co., proposal for work, Section 2, 117.

Right of way, Elizabeth, opposition expected, 6; committee to confer with Elizabeth, 13; discussed in Executive session, July 22, 1901, 43; application to Judge Van Syckel for an order, 46; Counsel ordered to press application for Commissioners to assess damages, 48; amicable arrangement proposed, 49; granted, section first of proposed agreement, 50; proposed agreement, 49-52; adoption of, 53.

Right of way, Peapack and Passaic Valley Railroad, price offered, 71.

Right of way, South Orange Township, Executive Committee directed to negotiate, 53; conference postponed, 55.

Right of way, Union Township, Executive Committee directed to negotiate, 53; time and place for conference proposed, 55; report of Executive Committee, 58; referred to Counsel, 58; report of Counsel, 60; terms of contract, 99; contract ordered executed, 105.

Right of way, West Line R. R., 14.

Rights of way, conference with municipalities as to, 5; options to be secured, 7; committee appointed to ascertain costs, 12, 13; Committee report, 14; agents to be appointed to negotiate, 34; $2,000 appropriated for expenses in securing, 35; sub-committees appointed, 39.

Rights of way, private, options, minutes not to be printed, 59; Executive Committee authorized to accept, 59; agents to report weekly, 59-60; Secretary instructed to keep charge of, 60; agents employed to obtain options, 62, 63; agents to set valuation and report, 63; Counsel directed to draw act permitting construction of sewer and payment of damages later, 66; proposed act prepared, 73; certain payments approved, 66, 67; action in certain cases, 71;

report of committee on, 73; referred back to committee, 73; form of resolution for taking land and the compensation therefor, 86, 87; report of committee on, 100-101.

Rights of way, private. *See also* Names of Owners, etc.

Riker, Adrian, Counsel, elected at Joint Meeting organization, 28; bill for professional services approved, 39; elected Counsel of reorganization, 374.

Riley, Ellen, executrix, right of way, payment ordered, 129; through property of, additional payment ordered, 153; claim for damages to trees, 335.

Rock exceeded estimate, 165.

Rollinson, William, permanent Secretary of Joint Meeting organization, 27; elected Treasurer of reorganization, 374.

Roselle Park, contract to lease sewerage capacity to, 100; proposed contract with, 106, 107; ordered drawn, 107; request for additional weir measurement, 191; additional weir measurements report of Engineer on, 200; request granted, 202; contract with, execution authorized, 206; manhole construction must be paid for by Borough, 318; request to increase capacity of Borough, referred to Engineer and Counsel, 356.

Rules and regulations limiting use of the joint trunk sewer, 275, 282-286; approved with amendments and ordered printed, 320; applications to connect ordered printed, 329; amendment, 335.

Rules for procedure, committee appointed to report, 29; committee report adopted, 30, 31.

Safe, purchase of, ordered, 88.

Salary, agents negotiating rights of way, 34; Chairman, 33; Counsel, 33; Executive Committee proposed, 39; referred to Counsel, 39; opinion of Counsel, 40; $300 per annum voted, 40-41; Permanent Chairman ordered paid, 269; Secretary, 33; Treasurer, 33; Chief Inspector of reorganization, 373; Engineer of reorganization, 373; Secretary of reorganization, 372; Treasurer of reorganization, 372.

Salem Road relocation adopted, 93.

Sandford, F. Ross, elected Chief Inspector of reorganization, 375.

Sandford, William M., claim for damages against Earle & Dougherty, referred to Counsel, 350.

Sanitary Company, Elizabeth lowering of grade in front of works, 196.

Schlegel, Herman, appointed inspector on Section 1, 135; payment for absent days not allowed, 201; resigned as inspector, 258.

Schmidt, John E., appointed temporary inspector, Section 6, 292; appointed inspector, 300.

Searches, being prepared by Fidelity Trust Co., 100.

Secretary of Joint Meeting Organization, William Rollinson, 27; salary of, 33; empowered to get stationery, 36; instructed to keep charge of rights of way options, 60; allowed to devote part of his time to other than Joint Meeting business, 236; of reorganization, salary, 372; Edward D. Tuttle, elected, 374.

Sewage discharge, committee recommends limit to share of sewer, 14; per cent. of capacity in each division, table, 17, 18.

Shanley, John F., proposal for work, Section 4, 173; proposal for work, Section 6, 185.

Shea, T. J., proposal for work, Section 1, 79-80; first in tabulation, 85; awarded contract, 85-86; bond of American Surety Co., approved, 90; deposit refunded, 90; payment on account work ordered, 128; contractor, progress of work July, 1902, 155; letter regarding his work from Mayor Ryan of Elizabeth, 160; report of Engineer on unsatisfactory condition of streets in Elizabeth, 161; statement all bills paid, 267; amount of final payment, 267; construction certified and accepted, 268; retention of 3% referred to Counsel, 268; opinion of Counsel, 273; final payment, 273; bill of John Spies paid by Joint Meeting, 361; proposal for work, Section 2, 117; proposal for work, Section 3, 144; proposal for work, Section 4, 173; proposal for work, Section 5, 120; proposal for work, Section 6, 185.

Short Hills Road, imperfect work near, report by assistant engineer, 292, 293.

Sinclair, R. S., invitation to discuss practicability of joint sewer, 4;

bill for preliminary work ordered paid, 45, 46, 47; to receive spade used at breaking ground, 98.

Size sewer, proposed change from 36 to 42 inches, 54; opinion of Counsel, 56; increased to 42 inches from Woodbridge Avenue, 63; change in necessary resolution prepared, 68; resolution specifying, 69.

Slants. *See* Y-Branches.

Smith, Alexander, claim against Earle & Dougherty, contractors, 219, 220; correspondence regarding, 224; referred to Counsel, 226; ordered withheld from moneys due contractors, 234.

Smith, George, employed as caretaker of Rahway River crossing, 361.

Smith, Mary, agreement to sell land at Rahway River, 324; purchase ordered, 327; plan of bridge approved, 328.

Smith, Mary Ann and Gilbert, right of way, payment ordered, 197.

Smith, Mary Jane, right of way through property of, 149; land ordered purchased, 157.

Smith, Thomas W., appointed inspector, 186.

Snyder, Frank W., bill for repairing Clinton Street, Vailsburg, referred to Counsel, 299, 319, 320.

South Orange Avenue, Vailsburg, deposit with Essex County Road Board to restore condition, 300.

South Orange branch, survey and estimate authorized, 5.

South Orange Bulletin to print minutes and stationery, 121.

South Orange Township invited to join, 4; consent possible, 7; withdrawal from project accepted, 16, 17; recommendation to take steps to secure consent of, 30; right of way, Executive Committee directed to negotiate, 53; conference postponed, 55; proposed contract with, submitted, 63; execution authorized, 64; change in grade authorized, 192.

South Orange Village, efforts to obtain a trunk sewer, 4; represented at first meeting, 4; co-operation pledged, 7; amount of sewage and per cent. of capacity, 17; apportionment of cost, 18; second reapportionment, 20, 21; members of Joint Sewerage Commission, 1901, 24; 1901-2, 38.

Spade used at breaking ground to be presented to Mr. Sinclair, 98; Joint Meeting to pay for, 103.

Specifications and contracts of all sections to be examined by Counsel and Engineer, 91.

Specifications of sewer, Section 1, from Staten Island Sound to Morris Avenue submitted, 67; approved, 68.

Specifications and plans, Section 2, approved, 94; ordered printed in book form, 96, 97.

Section 3, referred for examination, 96, 104; placed on file with changes, 108, 109; ordered printed, 142.

Section 4, referred for examination, 96, 104; placed on file with changes, 108, 109; approved, 110, 111.

Section 5, referred for examination, 96, 104; placed on file with changes, 108, 109; approved, 110.

Section 6, referred for examination, 96, 104; placed on file with changes, 108, 109; action on postponed to hear from Morristown, 110.

Speir, Francis, final inspection of Section 1, made with Engineer, 266; elected Permanent Chairman of reorganization, 373.

Spies, John, appointed inspector, 258; engaged as general inspector, 352; bill for labor, Section 1, paid and charged against Contractor Shea, 361; payment for labor to be charged against Earle & Dougherty, 367.

Springfield Avenue, question of going under bridge to be taken up with County Engineer, 91; bridge, Irvington contract with Freeholders to lay pipe when rebuilding, 97; application to Freeholders to open, 169; Millburn, guarantee for replacing road, 253; damage by storm to sewer work, 290; connections with sewer agreement authorized, 310.

Springfield Township, letter from attorney regarding authority for construction on Morris Avenue, 291; referred to members from Summit and Millburn, 292; question of privilege of tapping sewer, 300; agreement with to allow connections, etc., authorized, 310.

State Board of Health, approval to be asked, 9; asked to examine and approve proposed outlet of sewer, 53.

State Hospital for the Insane, participation in Joint Sewer, letter received, 68; letter regarding joining sewer, 194, 195.

State Sewerage Commission, recommendation to apply for authority to locate outlet of sewer, 30.

Staten Island Sound, bulkhead to be constructed, 51.

Stationery, Secretary empowered to get, 36.

Steel tapes supplied to inspectors, 143; deposit to be made for, 261g.

Stevenson, John, Co., request to connect with Bayway Sewer, 190.

Stiles, James O., right of way, condemnation ordered, 112, 113; condemnation to proceed, 131; payment ordered, 163.

Stiles, John W., right of way, condemnation directed, 112, 113; proposed agreement, 124, 125; payment ordered, 129; payment for trees destroyed, 131; payment for trees damaged, 187.

Stone, Fred, claim against Earle & Dougherty, withdrawn, 335; claim against Earle & Dougherty referred to Engineer, 341, 347.

Sullivan, Bernard J., proposal for work, Section 1, 80-82; fourth in tabulation, 85; proposal for work, Section 2, 117.

Summit, to be asked to join, 9; reported favorable, 11; election necessary before final action, 17; election reported favorable, 19; apportionment of cost, 18; amount of sewage and per cent. of capacity, 17; second reapportionment, 20, 21; members of Joint Sewerage Commission, 1901, 24; 1901-2, 37; adjustment of cost on account of capacity of sewer desired, 356; report of Engineer, 359-360; report of Executive Committee, 364; concurred in, 366.

Summit Division. Engineer directed to lay out new course, 158; report on change of line, 165, 166; referred, 167; change accepted, 168.

Sweeten, B. F. & Son, proposal for work, Section 3, 144.

Taylor, Mrs. N. E., right of way, condemnation directed, 138; land needed, 171; condemnation directed, 178; needed, 218; condemnation directed, 214, 223; Counsel authorized to settle with, 240; additional payment ordered, 253.

T-branches in Irvington every twenty-five feet, 181.

Test borings, bid of P. H. & J. Conlon accepted, 61; contract with P. H. & J. Conlon, 92.

Third Section, proposed amendment to contract for, 160, 261a.

Timber for foundations not stated in contracts, price fixed, 222.

Titles to land, searches necessary, 91.

Townley, Frederick, right of way through property of, 147; price offered, 150; along property of, 148; payment ordered, 197.

Townley, Mary A. & Frederick, right of way, condemnation directed, 170.

Treasurer of Joint Meeting Organization, Francis Phraner, 27, 28; salary of, 33; bond, 33, 35; bond approved, 39; bond renewal approved, 115, 254, 353; audit of books ordered, 373; of reorganization, salary, 372; William Rollinson elected, 374; bond fixed, 375.

Trunk Sewer cost, apportionment report to be made, 5. *See also* Apportionment.

Tuttle, Edward D., Permanent Chairman of Joint Meeting Organization, 27; resignation as Chairman, 41; elected Secretary of reorganization, 374.

Underdrains, question of, 9; report of sub-committee on, 10; Section 6, omitted from specifications, 185.

Union Avenue, proposed change in line of sewer laid over, 89, 90.

Union Township, recommendation to take steps to secure consent of, 30; right of way, Executive Committee directed to negotiate, 53; time and place for conference proposed, 55; report of Executive Committee referred to Counsel, 58; report of Counsel, 60; sewage discharge in Joint Sewer, 60; proposed contract with, submitted, 64; terms of contract, 99; contract ordered executed, 105, 114; addition to stipulations, 115; request to connect ten new houses with sewer referred back to Township, 260; request for payment in lieu of macadamizing North Avenue, 269, 270; letter with reference to bad condition of road at Bayway and Lindsley Street, 297; additional payment for restoring street surfaces, 311.

Union Township School, right of way through property of, 147; Board of Education to be paid one dollar per running foot for right of way and to be given right to connect schoolhouse, 261b; payment ordered, 326.

United States to be consulted on discharge of sewers, 30.

Vailsburg represented at first meeting, 4; survey and estimate authorized, 5; authorized $30,000, 7; approval resolution reported not yet passed, 12; amount of sewage and per cent. of capacity, 17; apportionment of cost, 18; second reapportionment, 20, 21; members of Joint Sewerage Commission, 1901, 24; 1901-2, 38; relocation of line of sewer in, 142; question of sewer through referred to consulting engineer, 239; bill for repairing Clinton Street, 319, 320.

Valuation of separate parcels of land submitted, 66.

Van Duyne, Harrison, opinion on Newark's apportionment, 6.

Van Houten, James, appointed inspector, 118; discharged on completion of Section 1, 271.

Van Iderstine, William, appointed inspector, 190; services dispensed with, 340.

Van Sant, ————, appointed inspector, 156.

Wander, John, appointed inspector on Section 4, 181; bill for services as inspector, 331.

Water-tight joints, report of sub-committee on, 10.

Watson, Mrs. Emma H., damages sustained to house and well, 261a; claim for damages to property, 262; sewer connection objected to by Elizabeth, 267; claim for damages to property on Bayway, 350.

Webber, Nicholas, right of way, change of location, 166, 167; agreeable to change, 172.

Weir manholes ordered constructed on Section 5, 361.

Welcher, Wm., appointed inspector, 156; charges against to be investigated, 156; report of Engineer on absence, 279; reprimanded and fined, 281.

Weppler, Conrad, right of way, condemnation directed, 112; payment ordered, 196, 197; counsel fees paid, 224; claim for destruction of spring, opinion of Counsel, 270; claim for damage for loss of spring referred to special committee, 295, 297; report of committee, flow not diminished, 307; Counsel authorized to acknowledge service in suit, 336.

West Line R. R. right of way, letter from D. L. & W. R. R., 14.

West Orange represented at first meeting, 4; branch survey and estimate authorized, 5; election necessary to decide, 7; amount of sewage and per cent. of capacity, 17; apportionment of cost, 18; second reapportionment, 20, 21; members of Joint Sewerage Commission, 1901, 25; 1901-2, 38.

Westfield Avenue, complaint regarding condition, 323; repairs ordered, 326.

Whittingham, Walter C., right of way through property of, 149; question of bridge referred to Engineer, 319; plan submitted, 326; plan approved, 328; bridge completed, 340; change of course of brook by temporary dam, 350; report of Engineer referred to committee, 352; letter to contractor work satisfactory, 361, 362; claim for damage by Rahway River dam, report by Executive Committee, 365; adjustment directed, 366.

Williams, Isaac M., right of way, offer to, 114; payment ordered, 123.

Windmill for Kuback to be erected, 261f.

Woodruff, J. Randolph, assistant counsel, 34; retainer voted, 41; rent of office room referred to Executive Committee, 47; rent to be his proportion of total rent, 58, 59; rent for room, 204.

Y-branches or slants to be properly placed in Elizabeth, 50; distance between, Section 5, discussed, 177.